NEW WORLDS SCIENCE FICTION

No. 74
VOLUME 25
2/-

THE IDEAL CAPTAIN
James White

STABILITY
Lester del Rey

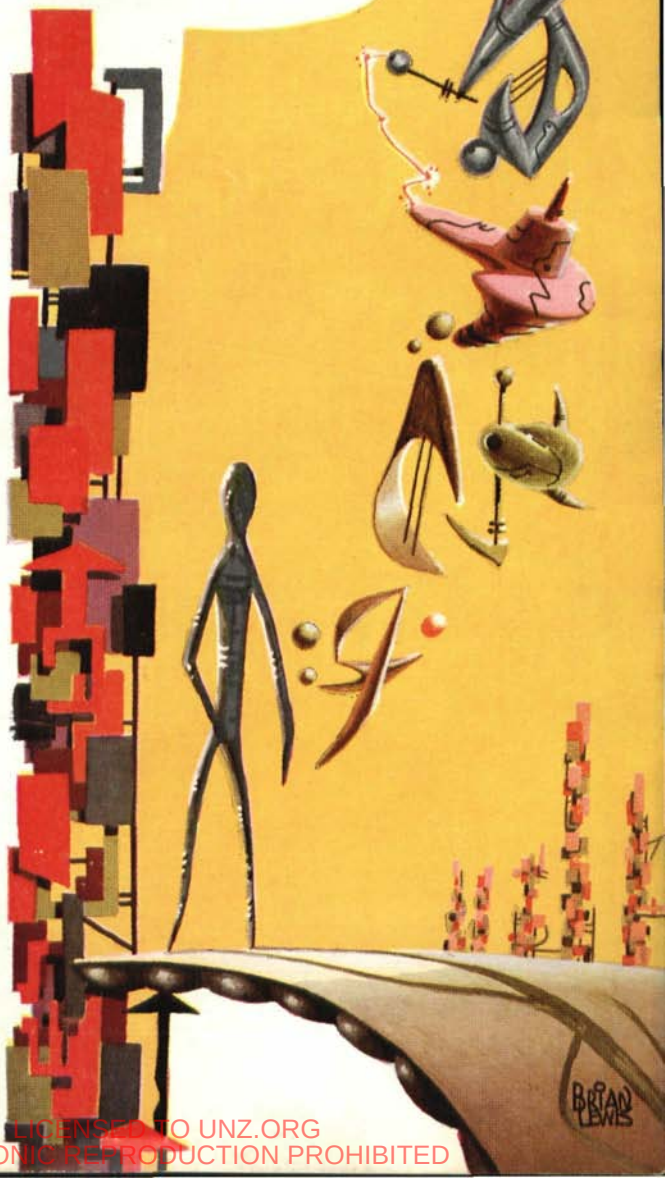
SPACE COMMAND
Kenneth Bulmer

SLICE OF LIFE
Calvin M. Knox

THE MULES
Sydney J. Bounds

DEATH
ON THE WHEEL
Clive Jackson

Features



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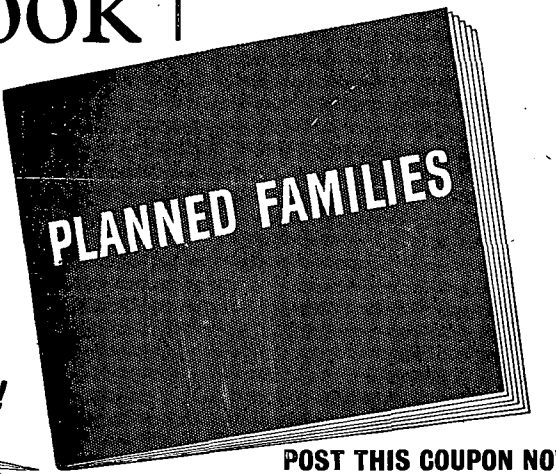

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NEW WORLDS SCIENCE FICTION

VOLUME 25

No. 74

MONTHLY

AUGUST 1958

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Around the . . .

Having returned from a holiday which was sunny enough to allow me to do plenty of cine photography, let us have a look at what has been happening in the science fiction word while I have been away.

The first noticeable factor is that the American recession has finally hit the science fiction magazines there, and a number have suspended publication for the time being. Our own industrial unrest during past months has also played havoc with all fiction sales in Great Britain, but the wet June and July has apparently put a stop to falling sales. Sales of national periodicals and newspapers also took a heavy loss during the last three months.

Incidentally while on holiday I found a copy of James Branch Cabell's *Jurgen*—a book I had not read for over thirty years—and was fascinated by a statement by Hugh Walpole in his introduction which said : " I know no book in the English language that colours one's imagination and fancy quite as this one does . . . now in this year of 1921 we have " Jurgen." May not this be the beginning of a fine English return to imagination, and how thankful some of us will be for this !" I think Mr. Walpole's prophecies have most certainly been realised in the succeeding years.

The summer globe-trotting season is once again in full swing—John Christopher now living in Switzerland was recently visited by John Wyndham . . . Two Australian writers have arrived in London, Dr. A. S. Fraser, who works in the Animal Genetics Section at Sydney University and is on his way around the world ; and Wynne Whiteford, who has already made a name for himself in Australia and has succeeded in selling to several American magazines, is now taking up residence in London, and we may expect to see stories by him fairly soon . . . Arthur C. Clarke arrived in London after another successful lecture tour throughout the U.S.A., and has now left for Ceylon, where he resides a great part of each year. Incidentally, the June 29th edition of *Reynolds News* splashed Arthur all over their book review page, and with typical journalistic thoroughness managed to give him the wrong middle initial in heavy black type. Doubt-

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. . . S-F World

less Arthur will forgive them this repeated error, but not for calling him a " dewy-eyed idealist."

New Worlds is very much an international magazine—there aren't many countries we do not reach—now comes a request from the Lenin State Library in Moscow for copies regularly ! . . . Several very interesting new cover paintings by Brian Lewis were awaiting my approval (by the way how do you like the new cover layouts on *New Worlds* ?) . . . Also a very fine technical painting from Mike Bradshaw whom we had not heard from for a couple of years (he is now working for the de Havilland Group) . . . I shall be using Mike's painting on *Science Fiction Adventures* No. 4.

Further details of the newly formed British Science Fiction Association were awaiting me—readers who are interested in receiving complete details of the new organisation should write to the Secretary, Mr. Eric Bentcliffe, at 47 Alldis Street, Great Moore, Stockport, Cheshire.

America's bi-weekly science fiction newspaper, *Science Fiction Times* has just published the result of their 1958 annual popularity poll (applying only to America); once again *Astounding Science Fiction* was the most popular magazine, followed by *Fantasy and Science Fiction* ; third, a long way behind was *Galaxy*, with *Infinity* fourth and *Science Fiction Adventures* fifth. Artist Ed Emsh easily won first place as the best cover artist, while Kelly Freas was rated the best black and white artist.

Meanwhile, in America, excitement is beginning to mount as the 16th World Science Fiction Convention nears. This will be held in Los Angeles this coming September, and will probably have two Australian delegates attending. Meanwhile, British fan Ron Bennett of Harrogate has won this year's Trans-Atlantic fan fund award, and should be representing this country in California. The guest of Honour is expected to be Richard Matheson ; and Ray Bradbury will be presenting a major speech during the proceedings. Master of Ceremonies throughout the sessions will be Anthony Boucher, editor of *Fantasy and Science Fiction.*

John Carnell

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Looking back over the five years James White has been writing for us—his first story was in January 1953—we are particularly impressed by the consistency of his ingenuity of plot. He never fails to turn in that little "something extra" in the ideas department which set his stories so high in "The Literary Line-Up." The following story is no exception—the Captain was to all men what they wanted him to be.

THE IDEAL CAPTAIN

By JAMES WHITE

I

The pre-takeoff instrument checks were complete, from the control-room speaker the one-minute warning had sounded its raucous, faintly derisive note, and there was nothing now to do but lie listening to the small busy sounds from the ship's automatic machinery. Not for *Mizar*, thought Surgenor drily, was the long and rather theatrical count-down of the Americans, or the stirring beat of Tchiakovsky's 1812 to which the Russians lifted ship. The Navy had a simple, restrained and more traditional way ; at minus ten seconds a bosun's pipe sounded ' Hands to Stations for Leaving Harbour '—a recording timed to last for exactly ten seconds—after which . . .

Surgenor's foam-padded couch became transformed suddenly into a slab of lumpy rock as he was jammed downwards. Acceleration sat like a very fat man on his chest and made it nearly impossible for him to breathe, and it pulled ridges of flesh backwards from his face and made him feel as if his eyes

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were being pressed out of shape. Altogether he was suffering considerable bodily discomfort, yet Surgenor knew that these few minutes of initial acceleration were likely to be the only worry-free period for himself during a voyage which could last nearly a year. Knowing this, he immediately began to spend the time worrying in advance.

Lieut-Commander George Adrian Surgenor, R. (S). N. . . he thought.

The "S"—which stood for Space, of course—was sometimes written as a dollar sign by goodnaturedly envious brother officers in the sea-going Royal Navy because of the vast difference in the rates of pay. But considering the fact that an engineer had to possess at least a Doctor's degree in physics to be even considered for a commission, it was understandable why nobody really begrudged them their high pay. The space-going branch of the service was, in short, a corps of the elite, and Surgenor felt that he was wearing his rank and uniform under false pretences.

On *Mizar* the duties entered against his name were pretty much in the third leg category; Radiomen and Medical Officer. In previous voyages, Surgenor knew, what little communicating which had been necessary had been handled as a small extra duty by the Pilot, and the services of a doctor were likewise superfluous.

In space, accidents were generally either trivial or fatal: cuts, abrasions and minor scalds through mishandling tools or while cooking on one hand, a suit rupture or a case of kissing Hardy on the other. Every member of the crew knew enough to deal with the former, but no doctor in existence could help a man whose suit had been opened to space or who had suffered a blast of hard radiation from a badly shielded reactor. Yet Surgenor, whose duties were of least importance, was the ship's First Lieutenant: his name was listed next to the Captain's.

Suddenly the acceleration cut out and the couch upholstery threw Surgenor gently against his straps. They coasted free for the customary ten minutes while the Engineer officer, tucked away in his tiny cubicle atop the drive reactor, assured the control-room that there were no indications of overload, radiation leakage or other malfunction in his department due to the period of maximum stress that was takeoff.

Listening to the quiet, unhurried tones of Lieutenant Murchison making his report, Surgenor felt a little of his

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anxiety leave him. The engineer Officer had a very comfortable belief to the effect that if he did his job properly—which he did—so that the mechanisms in his care did their jobs, then there was no need to worry. Murchison was the sanest man in the ship.

At the Captain's Interview—at which Surgenor had been unobtrusively present—Lieutenant Murchison had appeared to be very much impressed by the new skipper. The engineer's reactions indicated very strongly that he considered the Captain to be at least his equal in knowledge and experience of Murchison's department, and moreover, that Murchison found in the Captain a personality—a quality of easygoing, unworried competence—which was closely akin to his own.

All of which, Surgenor thought with a touch of self-gratification, was exactly as it should be.

Their course had been plotted to curve Northwest, so as to avoid by the greatest possible distance the present positions of the two missile-launching platforms which chased each other around the thousand mile circumpolar orbit. The personnel on armed spacestations were said to be very jumpy people. But the coast of China was coming up already. Surgenor leaned forward to set the transmitter to the general ship-to-ground wavelength, then spoke slowly and carefully into the microphone.

He spoke Chinese, or parroted it, rather—he knew only enough to identify the ship to the detector stations below and assure them of its peaceful intentions. It had been eight years since a ground launching site had fired on a spaceship—they weren't nearly so jumpy on the ground as they were in spacestations—but it cost nothing to be polite.

Surgenor repeated the message at short intervals until the Chinese mainland passed them, then he continued to identify himself and express friendship only this time in Russian. Some of the ground stations responded with the conventional formal replies in Russian, others replied simply "Okay" and one, whose operator seemed intent on practising his English, talked until out of range. Soon they were over the Arctic Circle and beginning to slide Southwards into Canada. Surgenor switched to English, and relaxed.

". . . This is Her Majesty's Space Vessel *Mizar*, for Mars on a colonial supply cruise," he said. "We are not contemplating dropping an atomic bomb on you—"

"I should hope not!" a female voice broke in from a station

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somewhere below. There was a soft laugh, then, " Pass, friend. And safe home, fellows . . ."

They spiralled out beyond the thousand-mile vertical limit which marked the end of territorial boundaries, and the polite apologies for tresspassing the very thin air of space above those territories became unnecessary. With the post-takeoff checks completed *Mizar* again accelerated, this time at one half-G. This, which was the most economical thrust for her reactor, would be maintained for fifty hours. Lieutenant Selby, the Astrogator—and, as the ship's most junior officer, the cook, barber and general bottle-washer—had his first approximation already worked out. Surgenor watched him copying it into a virgin page of his scratch-pad and in painfully neat script for handing up to the Captain. Next to Murchison, Lieutenant Selby was the sanest man in the ship.

Selby was young, he had steeped himself in the great traditions of the service, and enthusiasm burst from him at a constant, unvarying pressure. Surgenor had privately summed him up as a sincere but noisy idealist.

Lieutenant Selby had arrived at *Mizar's* enclosure, Surgenor remembered, literally hanging onto his current girl-friend's neck with one arm while his free hand gripped a heavy cane. To someone ignorant of the traditions it would have seemed a ludicrous sight, but any girl anywhere would have been outraged if her space officer escort had offered to walk beside her in any other way. That was one of the traditions which were really appreciated by presentable young officers of Selby's type. When he had crossed streets, Surgenor knew all traffic stopped for him, and with no bad-tempered hooting, either. And on crowded public transport well dare he offer his seat to anyone, no matter how many female strap-hangers surrounded him.

Tradition.

Space personnel nowadays were as healthy as anyone, but that had not always been so. Thirty years ago the drive reactors had been shockingly inefficient, a trip of one year was considered short and shipboard conditions—to put it kindly—were hellish. Marked atrophication of the main motor muscles resulted, also eye conditions due to improper filtering of raw sunlight, and very often sterility because of faulty shielding on the pile.

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Nowadays people could not forget the time when a spaceman just back from a voyage was the most heroic and pitiful sight in the world.

It was funny, and rather awe-inspiring, how the whole thing had come about. In the late nineteen-sixties when, last as usual, the United Kingdom was in a position to put up its first manned satellite, it fell to the Navy—which still maintained a force of supersonic fighters operating from carriers—to supply the pilot for the vehicle. Other ascents were made, culminating in the one which circumnavigated the Moon, and all were piloted by Naval officers. And so it was that a service which was newer than tomorrow became part of one whose proud history and traditions stretched back for centuries. Then, with the return of the first ship to reach Mars after a voyage lasting two and a quarter years, it began to develop traditions which were uniquely its own.

Conditions were much better now, though. It was the psychological rather than the physical health that was in danger these days. But a spaceman was still considered a very special person, and officers like young Selby still got a kick out of carrying a cane and hanging a cheek-to-cheek stranglehold on a girl in public.

Selby had the course in his hand and was on the point of handing it back to the Captain when Surgenor, with careful casualness, intercepted it. With the figures in his hand Surgenor paused and looked questioningly at the Captain's position, then he said " Yes, sir." and passed the paper directly to the Pilot, Lieutenant Kelso. *You'll never carry this off, dammit !* Surgenor told himself furiously, *you were nearly stuttering just then . . .* But the two other occupants of the control-room had not noticed anything, apparently. He gave an inconspicuous sigh of relief.

Kelso and Selby were engaged on making course corrections with the utmost speed and efficiency, so as to impress the new Captain. The pilot rotated the gyros while the Astrogator, his eye to the finder which was part periscope and part sextent, called out figures. Watching them covertly, Surgenor thought, *What a pair of opposites . . .*

To Selby the Captain was definitely not the chummy type. A disciplinarian, cold, stern and distant, was how the astrogator saw him, Surgenor knew. With creases in only the right places on his coveralls and cap just so, and with an aura of

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calm authority and competence radiating from his whole personality. The tradition-soaked mind of Selby had certain fixed ideas of how a spaceship captain should look and behave, and Surgenor knew that their present Captain was Selby's ideal.

The ship's Pilot, on the other hand, was a more complicated person.

Kelso was a realist ; he thought that he could see through the Captain. That business of the skipper taking a back seat and allowing him to handle the takeoff, for instance. That was an incredibly rare occurrance, because newly-appointed Captains usually wanted to do *everything* themselves for the first few months and their Pilots especially became little more than passengers. This Captain had acted differently and, although Lieutenant Kelso suspected that the whole thing was just a means to gain his loyalty and support—that in some obscure fashion he was being suckered by the Captain—he still appreciated being allowed to handle that takeoff. That, no matter what the reason behind it, had been a very real professional compliment.

At the moment Surgenor knew that both Kelso and Selby —the latter especially since his course had been returned to him for execution without being given the usual checkover by the Captain—were solidly and wholeheartedly behind the skipper. They swore by him in all the languages they knew. Surgenor hoped profoundly that they would stay that way.

Looking at the empty Captain's position—empty to Surgenor, that was—he found his mind slipping back to that small room in Woomera's Space Medicine building, to another empty chair and to a Captain's Interview the like of which had never been seen before, for the simple reason that it had been conducted without a Captain . . .

Unaware that they had been the subjects of a radical hypnoconditioning process that was both subtle and fantastically thorough, the crew of *Mizar* had arrived one by one, supposedly for their interview with the new captain. To Surgenor and the other naval psychologists present, Kelso, Murchison and Selby had chatted, talked shop and discussed their technical qualifications with the thin air above an empty swivel chair. But to those crew members that chair had not been empty, just as at the present moment the Captain's couch in *Mizar's* control-room was not empty . . .

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Then, as now, the Captain that the crew saw and spoke to had no actual existence. He was an hallucination—three different hallucinations, in fact. Kelso saw his Captain as a sharp, shrewd, hard-headed individual, a know-it-all who really did know it all. Murchison's ideal was the soft-spoken, easy-going type, and Selby saw something of a Captain in the romantic tradition, a sort of cross between Captain Bligh and Horatio Hornblower. But in each case the individual members of the crew saw a Captain who inspired in them the maximum amount of confidence, loyalty, and respect of which they were capable.

And Surgenor's chief duty—the one which was *not* listed against his name—was to keep the crew from discovering this deception. He, who possessed none of the technical abilities usual with the post, was the real Captain of *Mizar*. And the successful completion of his pet project demanded that he at all times act only the part of First Lieutenant, second-in-command to a figment of his own devising . . .

" Ship on course. One half-G thrust, sir," Kelso announced suddenly, with a glance towards the Captain's position.

This was the point, Surgenor thought, where he should exert his authority just a little. He put a sarcastic edge to his tone and said, " I suppose we'll hit what we're aiming at, Selby ?"

The Astrogator laughed. " Yes, sir. Eventually." To him the question had obviously been a huge joke.

A *joke* . . . !

Surgenor had trained himself, when faced with an unusual or inexplicable reaction to what should be normal stimuli, to do and say nothing until the explanation appeared. He did that now, but his mind was working furiously. Back at Woomera the authorities concerned with the economics rather than the romance of spaceflight were becoming worried over the quantities of reserve reaction mass being used by ships making drastic and wasteful course corrections. Over a distance of thirty or forty million miles a small navigational error could become a very big thing indeed, and could cause a severe drain on the ship's safety reserve of working fluid. The time to correct faults was at the earliest possible moment, and Surgenor's ambition was to have a nice, smooth trip with neither excitement nor minor blemish—such as fuel wastage—to mar it.

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But junior officers did not laugh when their First Lieutenant made pointed remarks about their astrogation—not like that, anyway, as though sharing some secret joke.

Shelving the problem temporarily—it was high time he got busy with his main job—Surgenor twisted around to face the Captain's couch. *Careful now*, he warned himself, *don't act nervous, or stammer, or lick your lips.* He said crisply, " Lieutenants Kelso and Selby have the first watch, sir. Permission for Lieutanant Murchison and myself to go below ?" He waited just long enough for permission to be granted, then spoke into the intercom telling Murchison that he was relieved. While Selby moved to bring the power room repeaters under his eye Surgenor unstrapped and stood up.

The expression ' going below ' merely meant that he was off-duty and not that he had to go to his cabin or the wardroom ; normally it was in order for a relieved officer to remain in the control-room and chat. Surgenor, however, was going to see that the expression was taken literally on this voyage. At the descending ladder he turned and spoke again :

" There's—ah—no need for you to stay here, sir. I think you should get your head down for a while. And have I permission to speak to you, sir, in your cabin ?"

He had a glimpse of raised eyebrows from Selby and the Pilot at his temerity in practically ordering the Captain out of his own control-room. That, Surgenor admitted, had been a risk, but they were probably expecting him to be well and truly told off about it when he got to the Captain's cabin, so there would be no harm done.

The wardroom occupied the level immediately below the control-room, and underneath that the galley and the cabins of Kelso, Murchison and Selby. On the deck below that again were the cabins of the Captain and First Lieutenant, the water recovery unit and the Binder, after which the ship was a mass of fuel tanks, cargo space and plumbing to the stern stabiliser fins. It was when Surgenor was about to enter his cabin that he met Murchison on the way up.

" If you're going up to the control-room," Surgenor said lightly, " don't."

" Why not ?" Murchison's tone was not annoyed, just mildly curious.

" The Captain says only watch-keeping officers are to be in

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the control-room," Surgenor replied. "Q.R., A.I. and all that. Social gatherings are to be confined to the wardroom."

"I didn't think the Captain was regulation minded," said Murchison equably. A slow smile grew around his mouth and he added, "New Captains have to be strict for a while, or they don't feel like Captains. I'm going to read a book."

The Engineer Officer was Surgenor's smallest worry, he thought as he entered his cabin and sat awkwardly on the spring hammock. Murchison's isolated position while on duty and his appetite for massive tomes on nuclear physics when off were the reason for that. Definitely, Murchison should not be a major problem, but the same could not be said for Kelso or Selby—especially not Kelso and Selby together.

The principle of divide and rule, Surgenor thought sardonically; or more accurately, divide and avoid gossip, compaiissons and eventually friction. It was imperitive for Surgenor's purpose that he keep the crew apart, doubly so that not more than one at a time aired their problems with the Captain. Traditionally the Captain held himself aloof—took his meals in his own cabin and so on—so that part of it should not be too difficult. But Surgenor was thinking of the time fifty hours hence when *Mizar* would no longer be in powered flight. Then there would only be one watch-keeping officer needed in the control-room, and when that one was himself the other three would be free to get together and talk anywhere in the ship . . .

II

Surgenor felt restive. There were books which he could study, or the ship was still within receiving distance of Earth commercial broadcasts if he wanted relaxation that way, but he could not settle to either. Half angrily, he reached across and switched on the cabin intercom. It was much too early to be doing this, he knew—three or four days at least should have been allowed for the situation on board to stabilise itself—but the uncharacteristic re-action of Selby a few minutes ago had Surgenor puzzled.

The intercom in Surgenors' cabin was not standard equipment, the difference being that it could be switched on without the fact of its being in operation registering on the indicator light at the other end of the line. He hunched forward, prepared in the manner of all eavesdroppers to hear a certain amount of ill about himself.

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" . . . Stupid, d'you think, or just ignorant ?"

The voice was quick, impatient, high-pitched. Selby.

" It must be ignorance," Kelso's voice replied more slowly. " Nobody could be stupid enough to practically order a Captain out of his own control-room." There was a pause. " But Lieutenant-Commanders, Space, have no right being ignorant. It's peculiar. We happened to shake hands, you know, just before he took me in for the Captain's Interview. He . . . didn't know how."

There was an unusally long period of silence then Selby, strangely subdued, said, " If he's ignorant—real ignorant, I mean—how will that effect the other business ?"

" I'm hoping it won't," Kelso replied quietly. " The Captain, theoretically, is supposed to be absolutely in the dark about these things : he turns a blind eye, but for various reasons cannot be involved directly. An uninformed or over-zealous First Lieutenant makes things more difficult. But not impossible. We'll just have to see that he stays ignorant."

" Good !" said Selby with returned enthusiasm. " I was worried there for a while. We'll just have to do something this trip, and no excuses. Last time it was Captain Ellis going sour on us, and the time before that I was the ignorant one—the ship will be getting a bad name ! So let's plot a little sedition, eh ?"

" Lieutenant Selby," said Kelso, suddenly authoritative, " don't be so blasted eager ! We have eight months, maybe more, to think of something, so keep your eyes on your panel and—"

Surgenor switched off at that point, he had heard enough. Then he thought deeply for several minutes.

So the crew thought their First Lieutenant ignorant. He smiled at the thought ; they did not know how right they were. Surgenor did not possess one-tenth of the technical knowledge necessary to a space officer, but he was hoping to keep that fact hidden from the others. This ignorance referred to something else entirely, and he thought he knew now what it was.

The handshake, the password, the secret recognition signals . . .

When Surgenor's project had been approved and he had been transferred into the Service, the Naval psychologists had told him to expect something like this. Maintaining mental and physical health in a ship in space—a highly-artificial

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environment comparing unfavourably with the worst of Earth's penal institutions—called for a rather special type of man, and even then it was necessary to bring certain stabilising influences to bear. These included the traditions and strict discipline of the Service, and the fantastic amount of responsibility and technical competence placed on and required of its Captains. But for a long time now there had been another influence at work. Apparently a sort of secret society had grown up among the space-going personnel—its existence was known, but nothing else. However, no official cognizance had been taken of it—certain high Naval authorities plus the Service psychologists had decided that it was an added stabilising influence and that anything which helped maintain the sanity and efficiency of space officers was not to be risked by an official investigator, especially an influence so juvenile, melodramatic and obviously innocent as this.

Maybe Surgenor would find himself being inducted into this secret society during the voyage, and maybe not. If he was, then he did not want to eavesdrop on the little secrets and seditions of the organisation now in case his reactions when he came to be initiated were not convincing. He smiled to himself, looked at his watch, then got up quickly. It was time he relieved Selby in the control-room so as to allow the astrogator to prepare dinner.

On the way up he realised that he still did not know the reason for Selby's joking acceptance of his crack about the other's astrogational ability. But that would probably make itself clear with time. Certainly there could hardly be a connection between secret societies and bad navigation.

After he had given orders to prepare the meals, Surgenor decided to lay a little more groundwork for the voyage ahead. He added, "The Captain, as is customary, will be taking all meals in his cabin. He has asked that I take them to him and not Lieutenant Selby or anyone else. Also, if anyone wants to see him on either a technical or personal matter, they must arrange it through me, and see him only one at a time—he was very particular about the last."

Surgenor softened his tone slightly and went on, "So it looks to me as if we are going to be allowed to run the ship pretty much as we like—the Captain will only take a hand if we make a muck of something. But if we do, God help us!"

He ended, "You're relieved, Selby. Carry on."

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In a way Selby was more servant than officer, having practically all the odd—and sometimes dirty—jobs to do about the ship. But Surgenor knew that before the trip was far advanced Selby's senior officers would be clamouring to relieve the lieutenant of some of his chores simply as an escape from the boredom of just lying around or studying.

Dinner was brought in, and because the ship was under half-G acceleration the liquids only were in no-weight containers. Little was said during the meal, and at its conclusion Surgenor went to the galley to collect the Captain's rations.

He knocked politely at the cabin door—a habit he would have to develop—and entered. The Captain's cabin was slightly bigger than the First Lieutenant's, and more luxuriously appointed—there was a tiny square of carpet on the floor. Surgenor put the food down then went to the spring hammock.

The spaceship hammock actually comprised two rectangular sections of woven plastic rope anchored solidly to the nearby bulkheads, one section paralleling the other with about two inches between them. The user lying sandwiched between the sections, protected against surges of acceleration, and with a couple of blankets insulating him from the cold plastic.

Surgenor slid himself into the Captain's hammock and squirmed around until the blankets were properly disarranged, then he got out, straightened his uniform, and attacked the Captain's dinner. While eating he made a mental note to tell Selby that both the Captain and himself were very light eaters —Surgenor did not think he could manage full double rations for very long. Finished, he rose and left, calling out " Yes, sir !" for the benefit of anyone who might have been within earshot, then he entered his own cabin.

Five minutes later, his belt let out three notches, he was in his own hammock reading one of the half-inch thick, one thousand page books that were specially prepared for a service where weight was money, cubed. Surgenor might not have the technical qualifications for his position, but he had at least to know the correct orders to give and have a general idea of what they referred to if he was going to appear to be an efficient First Lieutenant.

He surprised himself by going to sleep.

As watch succeeded watch the half-G acceleration maintained by *Mizar* piled up a velocity that had to be expressed in

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the thousands of miles per second. Their scheduled fifty hours of powered flight—with its comfortable meals, easy sleep and two-man watches of eight hours each—was coming to an end. Surgenor was in his cabin when the intercom beeped at him. It was Kelso :

" Shutting down power in ten minutes, Number One," he said. " I tried to call the Captain but apparently he's out. Can you—"

" He's here," Surgenor interrupted ; then, " Very good, I'll be up directly."

Precisely on the calculated second the damper rods drove silently into the pile and all weight disappeared from the ship. It was a simple evolution, but one which regulations stated must be carried out in the presence of the captain or First Lieutenant—a carry-over from the time when drive reactors were not the relatively safe things they were nowadays. Surgenor muttered something about the Captain being busy in his cabin, then flicked on the PA switch. This was for Murchison's benefit, the other two being already in the control-room.

" Cruising stations," he said quietly, giving official permission for the eight hours on, eight off duty schedule to be replaced by the six hour on and eighteen off, which operated during free flight. Then, more briskly, he announced, " All hands rig dust covers ! All hands ! Stand by the personnel lock for suit inspection. Number Two suits, with addition only of extra magnetic clamps and safety line, will be worn . . ."

Kelso looked startled. Selby gaped, then said, " The Number *Two* suits . . ?"

" This time," said Surgenor coldly, " we will perform the evolution unencumbered by suits carrying such unnecessary equipment as spare water tanks, reaction pistols, radios, iron rations and such like, therefore the lightweight Number Twos will be worn. With the added freedom of movement they will allow I hope—I *expect*, rather—that we will finish in record time."

" But we'll have no radios !" Selby protested. " If something goes wrong and we want to call the Captain . . ."

" With safety line and clamps," Kelso cut in, addressing Selby, " the only thing that can happen is a ruptured spacesuit. I think it's a good idea." Callously, he added, " If you did happen to rupture your suit, Lieutenant Selby, I'd prefer not to hear the noise you would make."

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It was nice to have Kelso back him up like that, Surgenor thought, even though it was unnecessary—the extra gold band on Surgenor's sleeve would have insured them doing and wearing whatever *he* liked, anyway. Furthermore, he did not care whether the covers took a shorter time than usual to rig —that job was performed to completion immediately after powered flight ended, instead of in easy stages, mainly for psychological reasons. If the men were not utterly bone weary and ready to drop with fatigue the first time they put their heads down in free flight, then they got falling dreams every few minutes for hours on end, and psychologically speaking the voyage got off on the wrong foot. The protection of the ship's hull was of secondary importance.

The crew might not be as fagged out as usual when they were finished this time, but that was a small risk which Surgenor did not mind taking so long as they wore suits which were not equipped with radios. The whole project depended on the crew not being able to talk to the Captain at times like this.

" Right," Surgenor said briskly. " Get into your suits—I'll stay here until the Captain relieves me, then I'll join you. Stack the covers beside the lock until I come down."

Surgenor waited ten minutes in the empty control-room—sufficient time, he guessed, for a Captain to come up, take over and discuss a few technical matters with his First Lieutenant. While waiting his mind busied itself with thoughts about space-travel, space itself, and its effect on the men who travelled in it. His mind often held such thoughts—indeed, as a naval psychologist it was his job to think them. Had he not done so his current project would never have got out of the pipe-dream stage . . .

The purely physical problems of spacetravel over extended periods of time were practically solved, and quite a few of the mental ones. On the technical side more efficient reactors and improved spaceship design helped by shortening the duration of a voyage and cutting down the secondary emission from cosmic rays to the minimum. Advances in dietetics together with intelligent indoctrination with Service traditions and discipline took care of the nutrition and exercise angles. It was the more subtle problems which demanded answers now.

The Captain problem, for instance.

It was a fact well-known to Naval Psychologists that a ship which possessed a really good Captain was sure to return safely

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time after time, while the rate of loss in those captained by good or merely brilliant officers was one in five after three voyages. The answer was, of course, to use only really good Captains in all ships, but this was easier said than done.

The persons qualifying for the post of spaceship Captain, or the type called really good, were exceedingly rare.

It was also well-known that ordinary spacemen—the healthy, well-adjusted, technically brilliant and, by normal standards, *extra*ordinary men—were affected by a subtle neurosis while on prolonged trips which was potentially dangerous unless the proper steps were taken to guard against it. When allowed to progress unchecked, this neurosis manifested itself first as a vague unwillingness among officers to make decisions, an increasing tendency to pass the buck. Coupled to this was an urge to huddle together as if for mutual protection—there were many theories about the impact of Space on the subconcious mind which sought to explain such behaviour—so that self-confidence among the crew deteriorated further through their unburdening themselves to each other by confessing about their own abilities. With each member of the crew trying desperately to shift responsibility onto the shoulders of another who in his turn showed himself completely incapable of accepting it, the affect snowballed rapidly until the officers were not only unwilling but actually afraid to perform even the most elementary jobs in their specialities.

A really good Captain, however, did not allow things to go that far. Before the rot could set in, at first sign of a lack of confidence in one of his officers, he stepped in with reassurances that he would be responsible for *everything*, at the same time proving that he was capable of assuming such responsibility. The crew were each brilliant in their specialities, the Captain had to know more than all of them, and be strongminded and stable enough to withstand the same environmental influences which were affecting his crew. Given such a super-stable, super-genius—such a veritable paragon of a Captain—the crew, confident that any mistakes they might make would be rectified, carried on normally and did not make mistakes.

But if a Captain did not measure up to this standard, and either showed that he was not the intellectual superior of each and every member of his crew or, by the smallest hint, sug-

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gested that he might be wanting to shift a little responsibility onto them, then the situation became very serious.

As a neurosis it was passive and quite unspectacular, but in space it was deadly.

Surgenor glanced at his watch, ironically saluted the empty Captain's chair, then left for the airlock chamber. The covers, twenty-eight rolls of tough, lightweight plastic four yards wide and varying in length from a few yards to more than the widest diameter of the ship, were stacked ready when he arrived. He checked to see that the whole chamber was sealed off from the rest of the ship—the unwieldiness of the rolls necessitated both inner and outer seals of the airlock being open at once to allow them to be passed outside—and only then donned his suit. He told Murchison to short out the safety device which allowed only one seal to open at a time, then the sudden tug of outrushing air sent him drifting towards the open lock.

Apparently he had given all the relevent orders correctly—Surgenor had studied them hard enough, the Lord knew, together with the vocabularies proper to the various departments and the bare minimum of radio-operating and languages to fit him for his communications duties. The medical end had not worried him—all psychologists these days had to be MD's first. But he was very much relieved all the same. Through luck or ability he had come this far without trouble, he hoped that whichever it was that was responsible would stay with him.

With his body occupied with the purely menial task of moving out the first covers, Surgenor found his mind wandering back to the time when he was pestering the Admiralty with a new idea for ship command. With paying colonies on the Moon, Mars and Venus, spacetravel was entering the stage where ships should be filled with tired businessmen instead of the intrepid adventurer types. But this state of affairs would never come about with the present system : good Captains being too scarce, and the merely adequate officers good for only two or three trips, their long and expensive training being wasted thereafter so far as spacetravel was concerned. Basically the problem was psychological, and the answer lay in the same field.

And Surgenor had convinced them that he had the answer, at least to the extent of letting him try out his theory in *Mizar*.

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Briefly, Surgenor's idea was to cut out Captains entirely and replace them with psychologists whose job it would be to induce in the members of a ship's crew the belief that they were commanded by a Captain who was ideal in every way. Up until a decade back when psychology was still more an art than a science—and there were a number of indifferent artists practising it—this would not have been possible, but induced hallucinations for therapeutic purposes was becoming common. In such a ship the psychologist must possess enough authority to direct the other members of the crew in their duties and when the space neurosis began to develop to arrange meetings between them and their mythical Captain for a pep-talk. The psychologist need not even be present at these meetings—the crew-man concerned would simply unload himself to the person who was most fitted to assume all his responsibilities and was competent to handle every contingency, the illusory personality created by the psychologist to fulfill his every mental need.

In actual fact the crew-man would both ask the questions and—in the person of his ideal Captain, answer them himself. The psychologist was aboard merely to see that all the members of the crew did not shoot questions at their three ideal and individually different Captains at one and the same time.

No hallucination could hold up under a strain like that.

But at the moment the Ideal Captain was supposed to be in the control-room and the suits the crew were wearing did not have radios. Surgenor could forget about him for the next few hours.

III

When the first roll was brought outside, Surgenor and Murchison anchored one end of it while Kelso and Selby traversed the ship's hull laterally, paying it out as they went. A few minutes later they had come full circle and the two ends of the roll were buttoned together. Like a great, translucent tapeworm the first section of dust cover encircled the ship, writhing, twisting and bunching slowly into irregular corrugations as the various motions imparted to it during the process of unrolling were exaggerated by the absence of gravity. Without stopping to admire these weird undulations—they would be cursing them with great fervour and fluency in a short time—they brought out the next roll.

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The procedure with this was the same as before, but then the two sections had to be joined together . . .

The third roll was joined to the second, the fourth to the third, and so on until the level of the airlock was passed. Then the job really became difficult, because the ship was now covered by a loose, wrinkled and fragile skin for more than half its length, under which the crew had to crawl with the rolls for the forward sections. Surgenor could see that faces inside their helmets were red and that lips were moving constantly as if their owners were continually cursing something.

Had their helmets been in contact or their suits fitted with two-way radio, Surgenor knew that enough abuse would have been released in two minutes to put the whole crew in the can for insubordination for about fifty years.

Yet at the same time, while sweat blurred his eyes and stank up his suit, his tired, numb fingers fumbled doggedly at a seemingly transfinite number of fastenings and he ached in more places than he knew existed, a cool, analytical portion of his mind was noting that this swearing and abuse towards seniors and subordinates within the confines of a spacesuit could be an important means of releasing tensions. Had the suits been fitted with radios, Naval discipline would have forced those tensions to be bottled up.

After a sweaty, muggy, fulminating eternity the ship was covered from nose to stabilisers. The stabiliser fins themselves were not covered, but the dust cover was attached to them a few feet from where they joined the hull and the join sealed with a film of fast-setting plastic from a hand-sprayer. This part of the job was done with great speed and efficiency, because nobody in their right mind who hoped someday to raise a family stayed longer than was necessary around a ship's stern.

Working steadily forward then, the button fastenings were sealed with sprayed plastic film. The joins were not strong, but they would hold up to two pounds pressure with the ship in free fall, which was more than adequate. Finally the whole wrinkled, sagging, undulating mass was reasonably airtight and Surgenor ordered some air bled from the emergency tanks. With only a fraction of a pound pressure being exerted on its inner surface, the plastic envelope covering *Mizar* swelled slowly and became taut. Surgenor ordered the men back inside the ship, relieved that they had completed the business without tearing, and having to patch the dust cover. That had been known to happen sometimes.

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At the airlock he looked out through the plastic at the blurry stars. The romance of spacetravel, he thought tiredly, and the sleek, silver beauty of the space-ranging ships . . . !

Mizar now looked like a sausage loosely wrapped in cellophane paper with only the stabilisers, radio antennae and viewing periscopes sticking out.

The reason for the dust-covers was simple. Micrometeorites with their mass of only a few molecules did not penetrate a ship's plating, even the thin metal enclosing the living quarters necessary to inhibit secondary emission of cosmic rays. Instead their insignificant mass and considerable kinetic energy was converted into heat—a tiny burst of incandescence which vapourised the metal at point of impact and caused pitting sometimes to a depth of a quarter of an inch. Such pitting could be dangerous not only because of the slow erosion of the hull-plating on long voyages but because it affected the streamlining of the ship and caused excessive heating on re-entry into planetary atmosphere.

Nowadays most of them expended their energy on the plastic outer skin which all ships carried for this purpose, and only the relatively big ones got through to the hull. Plastic dust covers could be patched or replaced much more economically than large sections of hull plating.

When he had his helmet off Surgenor said, " I will take the next watch, the rest of you get your heads down. See to supper first, Selby, and bring sandwiches to the control-room for the Captain and myself."

Selby clenched his jaw and stifled a yawn so hard that his eyes watered. " Yes, sir."

The next six hours, with everyone but himself asleep in their cabins, would almost certainly be the period of the voyage when he would not be under pressure of some form or other and it was during this time that he should try to plan for emergencies. He should review the behaviour charts he had drawn up for his three charges and see how closely their words and actions over the past few days agreed with them, and make note of any small divergencies or inconsistencies that became apparent for later correction. There was that business of Selby and his navigation, for instance.

But Surgenor's mind was too tired to weigh inconsistencies, or plan ahead, or even to think of anything except sleep. But he was on watch and couldn't sleep, so that if he could not

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keep himself awake by thinking he would have to try something else. In the weightless condition there was not even the warning of one's chin dropping onto the chest to jerk one awake, he knew, you just dozed off sitting bolt upright in your acceleration chair, or even hanging like a bat with the legs curled around the ceiling plumbing—a position favoured by some humourously inclined officers. Surgenor unstrapped and pulled himself around the control-room a few times to waken himself up. Finally he strapped down before the radio panel and began hunting for something worth listening to.

He found one station where the orchestra—it sounded like the NBC Symphony—were presenting Rimsky-Korsakov's *Sheherazade*, which was one of his favourites. But it was being broadcast on three-hundred twenty metres, and medium-waves lost heavily in their passage through the heaviside layer at the best of times, even without the current burst of sunspot activity to further hash things up. When Surgenor contrasted this static-riddled, wavering and well-nigh toneless signal with the quality of the hi-fi tape he had of the same work back home, he felt like strangling somebody. Angrily he tuned out and went hunting again.

Suddenly he heard . . . something : a faint signal, a voice, talking steadily against overwhelming interference so that only occasional groups of words came through. Surgenor turned up the volume, then changed his mind quickly and plugged in headphones instead of the wall-speaker—to hear the voice at all he would have had to bring in enough static with it to wake everybody in the ship.

The voice had an impatient quality as though it had been repeating its message for a very long time, and the signal was on the frequency reserved for ship-to-ship transmissions. It was with a shock that Surgenor realised that the message was for them !

" . . . Is on their trail, so be good boys this trip. *Mizar*, *Mizar*, *Mizar*. Wake up, are you drunk ! Misery loves com . . . getting out of our range, relay *please* ! Potommy is five days ahead . . . don't know . . . renick del. Don't, repeat don't, try it this trip . . . *Mizar*, *Mizar*, *Mizar*. Get the wax out . . . loves company . . ."

Surgenor flicked the transmit switch. He said, " *Mizar* here. Who is this, please ?" He had come to the conclusion that somebody was trying to be funny, but did not mind joining in to pass the time.

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". . . Stohlmeyer, Executive Office . . . onion girl. Did you receive . . . repeat it back to me, please," the voice replied.

"The message was not clear," Surgenor said in mock severity. "Clarification requested on terms potommy and renick del. Surgenor, First lieutenant *Mizar*, here."

There was a crackling, static-filled silence which lasted longer than the time-lapse necessary for the speed-of-light message to make the double journey, then :

"Surgenor, eh ? Don't know you . . . pass it on to Kelso, Murchison or Selby whether . . . understand it or not. Sort of chain letter . . . very bad luck if you don't . . . Repeat, whether or not it makes sense to you, pass it on to Kelso or . . . forget. Over and out."

Surgenor shook his head soberly. Even if this Stohlmeyer was playing a joke of some kind, the obviously senseless nature of it made him wonder if the executive officer of—onion girl ?—had a well-developed space neurosis. And most definitely he would not pass messages of that kind on.

On impulse he reached for the 'Janes' and turned to the ships of American registery. There it was ; he wrinkled his nose at the pun. *Lady of Shalotte*, American built capital ship, crew of fourteen, Haley-Edmunds reactor. She was supposed to have taken off for the American base on south Polar Venus about the same time *Mizar* lifted, but rumour insisted that this was a cover for an attempted landing on Mercury.

For the remainder of the watch Surgenor thought about Stohlmeyer and tried to make sense of the Exec's nonsensical message—clinical sense, that was. He considered it as being symptomatic of a mind which was not quite sane. He made no progress. The constant repetition of the message indicated that it could not be entirely purposeless, and the sudden change of tone when Surgenor had replied was also peculiar. When Selby relieved him he was still trying to puzzle out the meaning of the words potommy and renick del, or dey-yel.

By the end of the first month the routine of the ship had settled into the form Surgenor had intended. As ward-room President he let it be known that the Captain preferred to dine alone at all times, so there were no invitations for him to eat with his officers. He also told Selby that henceforth the Captain would tidy his own cabin, thus relieving himself of the necessity for disarranging the hammock every day. Both these

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requests were not only normal but expected ; many Captains held themselves aloof from their crews for the reason that a commanding officer who became familiar with his men could not help showing that he was human, and had human weaknesses. Captains were not allowed to have weaknesses. And at long last he had succeeded in impressing on Selby the fact that both the Captain and himself were very light eaters—Surgenor was no longer forced to put away enough food for two men. He also did his own tidying up : Captains and First Lieutenants could grow bored with inaction, and their wanting to do odd jobs to pass the time was not considered a weakness.

The only drama that came to the *Mizar* happened in the middle of the ninth week of the voyage. Murchison was on watch and Kelso and Selby were extending the mural on the wardroom ceiling when the meteorite struck, punching a three-inch hole through the wardroom plating and exiting via the galley. The sharp *Bong* which reverberated throughout the ship told everything, and Murchison had the airtight doors closed split-seconds before the drop in pressure could cause this to happen automatically. The ship had already made the change from normal air to low-pressure mixture of oxygen and inerts used in flight so that the pressure did not fall very quickly. Kelso and Selby had patches in position within eight seconds, and pressure was up to normal in the wardroom again two minutes later. Surgenor was in his hammock at the time —though in touch through the intercom—and missed all the fun.

The edges of the meteor puncture were red hot, which partially melted the plastic patch and made a perfectly tight seal. Kelso painted the patches to look like something else, and Selby later reported a cup broken. This was small loss because they could only use cups when the ship was on the ground or under acceleration.

For some reason a harmless encounter with a meteor was considered lucky, possibly because the occurrance was such a rarity that the fact of it happening at all was insurance against something else happening.

The meteor puncture furnished interesting discussion for nearly two weeks before boredom began to reassert itself. There were moody silences increasingly punctuated by bickering, and with very little to do and plenty of time to do it, there were some who perversely wanted to do even less—a sort of chain reaction boredom. Kelso, and to a lesser extent Selby, were the worst offenders.

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IV

In the fifteenth week of the voyage Surgenor had to get tough.

To begin with he gave them all a thorough physical check-up, then summoned them individually to his cabin. There was nothing at all wrong with them but Surgenor did not tell them that, and as Medical Officer of the ship as well as First Lieutenant there could be no disputing his findings.

"You have been developing lazy habits over the past few weeks," he told Kelso and Selby in turn. "Enforced boredom tends to produce laziness, I know, but you are making no effort to combat this process, which has now begun to show effects on the physical level.

"I am referring," he continued harshly, "to indications of atrophication of the motor muscles in your legs and arms."

He went on to point out that, with the provisions made to counter it in presentday ships, atrophication reflected nothing but shame and disgrace on the sufferer. He had communicated his medical findings to the Captain, and the Captain agreed with his suggestions for remedying the matter. Henceforth, and until further notice, six out of their eighteen hours off duty would be spent in the Binder.

"This is not to be considered as a punishment," he had reminded them, "nor will it be entered in your records. It is simply a medical prescription, unpleasant perhaps, but necessary."

The Binder was a complicated mechanical device designed to make its users exercise *all* their muscles. It was best described as part treadmill, part rowing machine and part mediaeval torture rack. Normally it was used to prepare crews for planetary conditions after a very long voyage. It was not a popular device.

Surgenor kept them on the Binder for three weeks, then he relented. In the case of Selby, however, he had to order him off the Binder in no uncertain terms. The astrogator had begun to grow muscles at an unusually rapid rate and he wanted to continue doing so until he was, as he laughing put it himself, a young, muscle-bound Adonis. But Surgenor, as a Doctor, advised him against it on account of the danger of his eventually running to fat and ordered him as his First Lieutenant to cease forthwith and to spend more of his free time at the course of studies he had laid out for himself. He reminded Selby that

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no spacemen ever considered that he knew all there was to know about his profession.

As the weeks wore on Surgenor did not actually forbid the members of the crew to meet together ; when he found them gossiping he simply found jobs which split them up until they themselves decided that he was the type of officer who automatically associated gossip with idling—a fairly common type in the Service. The work he set them to was chiefly decorative and essentially useless.

Surgenor had started the rumour that there was to be an Admiral's Inspection on their return to Earth, and that the Admiral in question had once let drop the hint that he was sick of interminable expanses of grey paint covering the interiors of spaceships. Wardrooms and cabins were exempt from this, of course, but there were still large areas of interior plating finished in drab, flat grey. Surgenor therefore suggested that the paint could be removed from the mass of plumbing which ran practically everywhere in the ship, and this metal piping kept polished instead. There were other painted gadgets and projections which could be similarly treated, and he knew that there was sufficient work of this kind to keep the crew busy for the rest of the outward voyage if he rationed it out carefully.

Everyone studied in their free time, and it was a peculiar truism that a highly intelligent mind did not object to—in fact found pleasure in—performing simple, noncerebral and useless tasks as a relaxation from study.

His own studies consisted of trying to learn enough about the workings of the ship to be able to pretend that he knew all about the workings of the ship. The crew did not know why an officer of Surgenor's rank was filling the lowly position of Communications and Medical Officer while being second-in-command to the Captain, and neither did they suspect that he was a psychologist. There had been no mention as yet of initiating him into their little secrets, but that did not worry him.

The pilot, engineer and astrogator were firmly convinced that they had a really good Captain. As yet there had not been the slightest indication of space neurosis. Those were the important things.

Mizar had curved Sunwards to within a few million miles of the orbit of Venus and had pulled out again to well beyond the orbit of Earth on the other side. The outward part of the

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voyage was two-thirds over, the ship was a going concern and everything was fine. Surgenor began to feel just a little bit complacent.

Then he found out what potommy meant, and knew that his ship was rotten . . .

Murchison was in the Captain's cabin talking about some technical problem and Kelso and Selby were together in the control-room when Surgenor made the discovery. As it was supposed to be his sleep period he could not very well go up and give Kelso—the officer not on watch—a job somewhere else because, while it was permissable to split up groups of three on grounds of apparent slacking, forbidding two people to talk to each other would smack of petty tyranny. But Surgenor was usually able to monitor such meetings, and only in the rare event of the Captain being discussed in great detail was it necessary for him to break it up, or guide the conversation into safer channels. This time, however, the Captain was not being discussed. Only Kelso was talking, but the Pilot was not speaking to Selby . . .

". . . *Potemkin, Potemkin, Potemkin,*" Kelso's voice droned out. "Victory in defeat. Calling *Potemkin, Potemkin, Potemkin* . . ."

For a shocked instant Surgenor's mind could not think, then it literally seethed. Part of the nonsense message which had puzzled him at the beginning of the voyage—the signal from Stohlmeyer of the *Lady of Shalotte*—had become a little clearer. Potommy was obviously a familiar reference to the crew members of *Potemkin*, and *Potemkin* was one of the latest Russian vessels which rumour had it was scheduled for a Mars trip about the same time as *Mizar*. Victory in defeat would refer to the original *Potemkin*, an old-time battleship whose crew had rebelled ; *Mizar*, miser, misery loves company, both were, must be, recognition signals of some sort. Kelso was calling up a Russian ship.

Surgenor's angry speculations were cut short by a sudden change in Kelso's tone.

". . . Oh, there you are," There was a short pause, during which Surgenor concluded that Kelso was using phones with the receiver instead of the speaker, then the pilot resumed. He sounded slightly impatient :

"Yes, yes, misery loves company. But don't be so blasted cautious, who d'you think would be calling you ! . . . Yes,

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we can talk freely—for a while, anyway. The usual arrangements will *not* be possible, that's definite. Matching course and velocity so you can come aboard would be too wasteful of fuel . . . Yes, you heard me correctly. We've a new First Lieutenant who wishes to save fuel, with all that implies ! It's safer for me to call you, the other way he might walk in in the middle of it . . . . Yes, real ignorant. But he looks as if he might be possible. In time, and with a few, ah, reorientation talks . . ."

Kelso's voice had dropped to a conversational level, and the transmitter mike was eight feet away from the one serving the intercom system. Surgenor pressed his ear against the speaker grill in his cabin, straining to catch every word. He was still too stunned by what he had heard to have any coherent thoughts about it yet. He only knew that he had to hear more, collect more data, and that he had never been angrier in his whole life.

". . . We've nothing new this trip except some modifications of the reactor, it's safer *and* more efficient. But you don't need to see it. Murchison will read the details across to you when he has time—apparently a few fancy equations tell the whole story . . . Oh, we'll manage something this trip ; it's just that with this new Jimmy we have aboard we have to be careful . . ."

There was a long pause, during which Surgenor heard Selby's voice for the first time. The astrogator said, " Tell him what we have planned, sir."

" In a minute," Kelso said shortly, then, " Listen, our idea is this. We fake damage to the stabilisers shortly after touching Martian atmosphere. We have only partial control, which fact causes us to land close to your Syrtis Colony instead of Hesperia. Your people come out and impound the ship and cargo for violating territorial limits. Just make sure that nobody makes a slip, because our Number One will be writing the whole thing up in the log."

There was another interval of silence.

" I know it's crude," Kelso continued suddenly, "but in my opinion we've been finessing too much lately. There'll be an awful stink, of course, and I'll probably get a reprimand when we get back, but for once the thing will have happened right out in the open, and that should divert suspicion from us

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nicely. Did you ever hear the saying that the best way to be inconspicuous is to be obvious ?"

For the next few minutes there was nothing coming through to Surgenor but occasional grunts, then Kelso spoke again :

" If that's the way you want it, I suppose we'll have to. All right then, we land on Deimos and pick it up. Thirty yards from the Braun marker, got it. Good-bye. Over and out."

For several minutes Surgenor felt too sick and disgusted to move. In his book treason was the dirtiest, lowest and most heinous crime there was, and even after what he had just heard he found it hard to believe that an officer in the proudest of all services could be guilty of it. But it wasn't just one, the whole of *Mizar's* crew with the exception of himself was corrupt, rotten with treason . . .

His first impulse was to go storming up to the control-room and confront them with it, but then a more steadying thought came. What would happen to the ship, and its crew, and himself, if the situation got out of hand and somebody was hurt. Theoretically the Captain could perform any members of the crew's duties, but the Captain of *Mizar* was a figment, an induced hallucination. Also, a charge of treason was something the Captain would have to be brought in on. Thinking over the implications of what he had just heard together with something Kelso had said at the beginning of the voyage, that the Captain turned a blind eye on certain things, Surgenor wondered suddenly which side the non-existent Captain would be on, his or theirs ?

Savagely he flicked the switch on the intercom which allowed him to eavesdrop on the Captain's cabin.

The slow, even tones of Murchison sounded in the speaker. Murchison also was talking treason, which meant that his Ideal Captain was talking it, too . . .

He could not blame the Captain, Surgenor thought, and laughed mirthlessly, it was the same as blaming a mirror for reflecting a true image. It was his own fault for not probing more deeply into the mental processes of the crew when he had the chance. Surgenor had had to work on them through subordinates, of course, to insure that he would not be recognised when they later met him on the ship, but he should have found this rotten, reeking core in those apparently sound mentalities.

Suddenly he cursed. He couldn't understand it.

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The space-going branch of the Navy was comprised only of the most intelligent, stable and morally sound individuals available. Intelligent indoctrination with the traditions of the Service and the sheer necessity for strict discipline was what gave it its extraordinary high standards—*intelligent* indoctrination : its members were too bright to be taken in by mere propaganda in the old sense. Surgenor himself was a case in point. As a psychologist he would have detected any phoniness or mental sleight-of-hand and automatically negated it. Instead he believed fully in the ideals and traditions of the Service because he was completely and intellectually aware that those ideals were sound and the traditions truly great.

Even though the planet had progressed into the first decades of the age of spaceflight, it was a very uneasy peace that lay upon Earth. What was perhaps worse, people had become almost used to this peace of the powder keg. The situation being what it was, there was, of course, such lesser symptoms as intensive Security measures and the classification of practically every new scientific fact to be discovered.

Spaceships in this day and age, embodying as they did the very latest in nuclear and engineering science, were extremely valuable pieces of machinery. Their secrets had to be protected, and to this end there had been developed a very Top Secret drug which, when administered together with certain harmless hypno-conditioning, made it impossible for any imformation to be extracted from space personnel by any form of coercion—the person possessing the information simply forgot it until the coercion was withdrawn. It was a simple, foolproof and harmless technique, and over the course of the years it went the way of all Top Secrets until now everybody used it.

So Surgenor could not even bring the extenuating circumstance of coercion to excuse the behaviour of *Mizar's* crew. They were immune to coercion, and their intelligence and well-developed moral sense and pride in the Service should have stopped them giving away information voluntarily. But it had not.

There was something terribly wrong somewhere.

The thing which most sickened and horrified Surgenor most was the sheer scope of these treasonous activities. Stohlmeyer's apparently nonsensical message, although he still did not understand it fully, had proved that the sedition was not confined to just *Mizar*. Now Surgenor was beginning to realise

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that the little secret society which existed among spaceman, with its handshakes and recognition signals and which the Naval authorities smilingly ignored as being harmless, was in reality a cover for an espionage system which extended all through the Service.

But how were they recruited? In what fashion were their minds changed? What could so reverse the allegiance of men who were so loyal, well-adjusted and above all, so intelligent?

Suddenly a snatch of Kelso's conversation with the Russian ship sounded again in his mind, to the effect that the First Lieutenant was real ignorant but might have possibilities after a few re-orientation talks. *That*, thought Surgenor viciously, *is what you think* ! With a swipe at the intercom switch he cut off the voice of Murchison which was still drifting softly into the cabin, and changed to the control-room pick-up.

Selby was talking.

" . . . And sometimes I can't help thinking of what would happen if they found out about this back home. I mean, I like the Service, its ideals and . . . and everything. But if they found out, our reputations would be dragged in the mud, and everything I've dreamed about would . . . Well, the stars would look awful far away through the bars of a prison."

" There, there," said Kelso's voice.

" I'm *not* getting cold feet !" Selby protested, then complainingly, " It's just that I wish being a spaceman wasn't so . . . complicated."

" Don't worry," said Kelso nastily, " they'd probably shoot you, anyway."

" . . . You were saying that the potommies are worried about their *Meeneestyerstvoh Vnootrenikh Dyehl* ?"

" Lieutenant Selby," said Kelso sharply, " say MVD like everybody else does and stop trying to show off your Russian ! Yes, they're worried. They think the MVD might be on to something, but they aren't sure."

Abruptly the listening Surgenor knew what ' renick del ' meant, the last three syllables of MVD, and Stohlmeyer had spoken it in full to insure its being received despite the fading. The American had been trying to warn *Potemkin* that the MVD was following and not to pull anything this trip. That could only mean that the Russian ship was also guilty of something, otherwise their ministry of Internal Affairs would have given the ship its blessing rather than checking up on it. The business was getting dirtier and dirtier. Not only was information being

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passed to another government, but apparently there was a Russian ship playing both ends against the middle.

Surgenor listened for nearly an hour, but the conversation between Kelso and Selby had petered out. He wriggled into his hammock again, but did not sleep.

V

There were three main colonies on Mars, the American one in the Trivium Charontis, the Russian in Syrtis Major and the British group of settlements in Hesperia. All were roughly in the equatorial belt with slightly less than a thousand miles separating the Trivium and Syrtis colonies and with Hesperia placed half way between and a little south of a line joining the other two. It would be very easy to overshoot Hesperia and land in the Syrtis Major, especially if there was supposed to be something wrong with the stablilsers. Nobody would suspect that it had been anything but bad luck.

But the Russians were not, Surgenor swore fiercely to himself, having *Mizar* handed to them as a present. *Something* had to be done to stop it.

Surgenor was too angry to think of the consequences of drastic action on the peculiar balance of psychological forces currently at work in the ship, or of the affect on himself personally should those induced hallucinations break down. He only knew that *Mizar* must be put down in Hesperia, and because the authorities there would not be equipped to deal with a conspiracy of such incredible scope, he must take word of it back to Earth.

The spring cables creaked and the hammock oscillated wildly as Surgenor tossed and twisted, worrying at the problem. It seemed insoluble, yet by the time he was due to take the watch in the control-room he thought he saw a way out. All that it required was a few months frantic studying, the temporary abrogation of his Hippocratic Oath and a really fantastic amount of luck.

By a strange coincidence it was during his watch that Surgenor got the trace on his radar screen. It was the characteristic long, foggy streak from the hundred-mile-long trail of ionisation left by a spaceship in powered flight. That would be the MVD-crewed ship applying acceleration to catch up with *Potemkin*, Surgenor knew, and he also knew that but for the

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ionisation trail it would have been undetectable at its present distance. When that acceleration was shut down, as it was certain to be soon, *Potemkin* would not suspect that it was being trailed, or paced, or overtaken and passed as the case might be.

He had not mentioned Stohlmeyer's message to the crew, and he was not going to tell them about the ship which had passed them. Kelso or one of the others might put two and two together and warn *Potemkin*. Surgenor thought that if *Potemkin* was caught redhanded in something they deserved all they got. He strongly disapproved of traitors, even when they were on the other side.

Now that there was so much for him to do, the remaining weeks of the voyage seemed to rush past. Hitherto Surgenor's technical studies had been general, now they were specialised. In his locker there were ingenious devices which he had managed to construct from directions in the manual whose purpose was to train and speed up the reflexes. And every time he had the watch his first act now was to switch out the leads to Kelso's control panel and strap in before it. Hour after hour, day after day, Surgenor made practise runs on the board. There were so many indicator lights, and pile gauges, and complex permutations of toggle switches that he felt that he was displaying symptoms of insanity by continuing with it. But gradually the Pilot's Control Position began to grow familiar to his fumbling hands and later they showed signs of finding their way about the panel with a fraction of the necessary speed.

And he had laid the groundwork for the second part of his plan, by appointing himself the job of preparing meals when Selby was on watch—ostensibly to have something to do.

Surgenor continued to listen in on the *Mizar's* half of conversations between it and *Potemkin*. Once there was a very spirited discussion on the prevention of space neurosis as practised by the three major powers. The Russian idea, which was to carry a small reserve of technical brains under sedation during a trip until they were needed, was bad physiologically for the technical brain boys, because of the long periods of forced inactivity which was not completely countered by exercise machinery. But the presence of persons aboard who could be woken up any minute to take over had a very steadying effect on the other members of the crew. This method was compared with the American idea of making every voyage a

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sort of training flight, with two full crews competing at every stage for graduation honours.

But Kelso, Murchison and Selby held the opinion that such fancy methods of beating space neurosis were artificial and unnecessary provided a ship had a good Captain. *Mizar*, they affirmed, had a very good Captain.

Surgenor had smiled when he heard that, but coldly—he was still a very angry man.

In the forward viewing panel the disc of Mars grew steadily until it became a giant pink football streaked with patches of pale brown and green. The minutely detailed and exhaustive checks necessary before power was re-applied were completed, then on the eighth day before landing the evolution of dismantling, repairing and stowing the covers was ordered. At exactly ETA minus fifty hours the dampers were withdrawn from the reactor and *Mizar*, its tail now aligned on Mars, began decelleration.

When Kelso requested permission for a landing on Deimos, giving as his reason a suspected flaw in one of the stabiliser control surfaces, Surgenor had been expecting it. He went through the motions of referring it up to the Captain, then gave assent. The landing, he knew, was simply to pick up something *Potemkin* had left for them beside the Braun marker, and was probably the payment for services rendered as well as strengthening the fable about a faulty stabiliser which would later excuse their landing in the wrong place. Unknown to them, however, Surgenor intended seeing that they landed in the right place . . .

In the attenuated atmosphere of Mars even a gale possessed only a fraction of the force of its Earthly prototype—though the low gravity allowed quite impressive amounts of dust to be blown about at times—and conditions in the Martian stratosphere were proportionately mild. Provided there were no snags Surgenor thought he could mange a landing and takeoff on Mars. When, or if, *Mizar* reached Earth again help would be sent up to him when he explained the circumstances, because he knew that if he studied and trained for ten years he would never be able to land there.

But all that was required at the moment was the removal from duty of the ship's present Pilot.

With this idea in mind Surgenor had long since taken on himself the chore of serving food when Selby was on duty, so that no suspicions were aroused when he brought it to Kelso

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and Selby in the control-room two hours before they were due to touch down on Deimos. It was a simple, if rather melodramatic, matter to doctor the Pilot's food, and although Surgenor had thought first of administering an extra heavy dose of sedative in this way, he later thought that less suspicion would arise if it took the form of violent stomach cramps which could later be blamed on any number of things. Surgenor was still in a savage mood : if *Mizar* got back its crew would suffer their just desserts, but at the moment he did not mind one of them paying a little on account.

Strapped into his couch in the control-room, with Murchison at his station, then to his non-existent Captain in the chair beside him and the forms of Kelso—who would very shortly be taking sick—and Selby in front, Surgenor began thinking of the harebrained plan of his with a measure of objectivity.

It was not a good plan.

The first part of it should go off all right ; the sense of righteous anger and disgust he felt towards his crew and what they were doing would carry him through. But anger was not a reliable driving force over long periods, it flared into violence or else died away, and if either occurred on the long trip back the results would be equally disastrous. With the secret knowledge of their activities festering in his brain Surgenor knew that the psychological balance of the ship would deteriorate steadily until he either became so apathetic that he neglected or—because of space neurosis perhaps—became too unsure of himself to maintain the myth of the Ideal Captain, or he started laying into this bunch of traitors with the nearest blunt instrument. Killing the non-existent Captain or killing the crew would be equally fatal—the ship would never reach home. It was not a good plan at all.

Kelso was moving restively and his voice was strained when he announced that the ship was at rest with respect to Deimos and that steering jets only would be used for the actual landing. The gravitic attraction of the five mile diameter jumble of rock that was the outer moon of Mars was so slight that a ship simply stopped beside, then sort of nuzzled up to it. The viewer showed the bright area where the first ship to orbit Mars had connected with a charge of magnesium and at whose centre, still too small to see, had later been placed a metal plinth. By the time they had touched rock, Surgenor noted with satisfaction that the Pilot was wincing frequently and rubbing his midriff when he had a hand free to do so.

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" Permission to take a party for exercise, sir ?" Kelso said when his controls were neutralised. There was no attempt made to disguise the undercurrent of double meaning in his tone—both the Captain and himself knew the real reason for the request. Affirmation was apparently received from the presence in the Captain's chair because he called, " Murchison! Suit up, we're going for a walk. You, too, Selby. And you might find it interesting as well, sir," he added, looking slyly at Surgenor.

This was a totally unexpected development. Kelso and the others did not know that if he went out with them the ship would be empty. Their Captain was in the know, however, though unofficially, which meant that there was not likely to be radio contact between them while the crew were picking up the little gift the Russians must have left them. Surgenor decided to risk it—it would be a chance to gain more evidence against them, after all. He asked permission to join the party from the Captain's chair, then climbed into his spacesuit.

Only then did it occur to him that he might have made a slip that Kelso and the others knew that he knew all about them, and that when he went out he might not come back . . .

The secret of successful travel on light-gravity bodies was to take it easy and not strand oneself with both feet off the ground, so that it took nearly fifteen minutes to travel the short distance from *Mizar* to the Braun marker. There was a little pile of vacuum-sealed packets some distance from it. Surgenor, who had thought that this was a trip to pick up the payment for the earlier passage of information, was puzzled.

Kelso, who was beside him, motioned for Surgenor to switch on his suit radio. " Those containers," his voice came tinnily, " are for delivery to some friends of ours—" He broke off with a grunt of pain and involuntarily bent forward. Surgenor knew that he must be in considerable distress at the moment and felt a twinge of remorse ; he did not approve of sheer cruelty, and now wished he had used something milder. Kelso went on, hesitantly, " I don't know where you have served previously, sir, but I suspect that there are aspects of this job which you have never considered up to now."

In a carefully neutral voice, Surgenor said. " Indeed."

" Yes, sir. You see—"

A gutteral, jabbering bedlam burst from their headphones, a howling babel that made conversation impossible, and simultaneously Surgenor's eyes were dragged upwards by a bright spear of flame which was burning a zig-zag path across

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the stars. He watched fascinated as the missile curved upwards wavered, then plunged towards the grounded *Mizar*. It crashed through the hull in the region of the control-room and exploded on the way out at the point where the retractible antenna emerged from the hull.

A radio-controlled, armour-piercing projectile with a small chemical warhead, his mind noted, then Selby's voice was adding to the uproar already dinning in his ears.

"Captain! Captain! Are you all right, sir? What's *happening* . . ?"

Surgenor tapped him sharply on the helmet and pointed to the tangle of wiring and lattice-work drifting slowly down the *Mizar's* side : even if the Captain was all right he couldn't reply, even if there was a Captain. He felt vaguely pleased with himself for keeping his head and noting details at a time like this. Maybe he was made of tougher stuff than he's thought. Or was he just too stunned to panic?

Two more missiles climbed above the close, ragged-edged horizon and snaked downwards, both wide of *Mizar*. The first hit must have been a fluke. But one landed quite close to them. There was a small, soundless explosion, a tingling shock struck upwards through Surgenor's boots, and twenty yards away rock in assorted sizes began to move upwards and outwards. Above the babble in the phones Kelso's voice shouted, "Get *down* . . !"

From behind a low outcropping Surgenor watched rock fragments sail slowly past overhead while he frantically tried to pull himself in closer to the ground. There was a sudden, sharp cry in his phones and he saw Kelso's arm pinned momentarily to the ground by a rock half as big as himself which bounced slowly into the air again. Surgenor cringed, but there was no sudden spurt of escaping air. The arm of Kelso's suit was dented deeply but not holed, and the arm inside it must have suffered considerably.

Suddenly Murchison's voice, a slow bellow of tremendous volume, roared out: "Stop all talking at once! Who is speaking?"

The babble diminished to just two voices, one of which spoke haltingly in English and the other which tried to shout it down in Russian, but Surgenor could not separate them well enough to make sense from what he was hearing. Murchison and Kelso had their heads together and Selby was joining them:

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he moved over and touched helmets also. They could talk together comfortably that way with their suit receivers switched off. Surgenor said, " What is happening, Lieutenant Kelso ?"

" I was starting to explain the set-up to you when . . ." He waved his good arm weakly at another missile which was arcing downwards. His voice was slurred with pain. " Oh, this is one hell of a mess !"

Surgenor said that he had already guessed that, he wanted details.

" It's like this . . ." Murchison broke in, and went on to explain that one of the voices they had just heard—the one trying to speak English—belonged to the astrogator of the Russian space-vessel *Potemkin*, and the second to an officer from another Russian ship which had been sent out secretly to keep tabs on the first one. The second Russian ship was crewed with MVD men with inadequate space experience, and when *Potemkin* had left part of her cargo on Deimos for later collection by *Mizar*, the ranking MVD man had immediately accused *Potemkin* of treachery. The second ship had also overheard the radio conversations between *Potemkin* and *Mizar* which further subtantiated this charge.

" We've been talking to *Potemkin* during the trip, sir," Selby put in quickly. " While you were asleep, mostly. And if you'd overheard some of the talk . . ."

Another missile landed and the ground did its best to shake them off. A jagged rock about two feet in diameter came rolling and bouncing in crazy slow motion towards them, to slide silently overhead with inches to spare. A drift of smaller stuff followed it.

" But there was nothing—intrinsically—wrong," Kelso came in again. " You must believe that."

" All right. I'll accept that for the time being," Surgenor lied quickly. " But what is happening *now* ?"

The first shock of surprise at being precipitated into the middle of a shooting war was wearing off. Surgenor was getting scared. But as he listened to Kelso's summary of the situation he forgot his fear for a moment ; the chill he felt was one of horror.

The MVD ship's commander had ordered the crew of *Potemkin* out onto the surface of Deimos in spacesuits while a search was made for further incriminating evidence in their ship, the order being backed by the threat of missile bombardment. In addition to searching the ship, the MVD officer had jettisoned

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all of *Potemkin's* working fluid, then proceeded to play cat-and-mouse with her crew by sniping at them every time they tried to return to their ship. *Potemkin's* captain had had the forethought to take extra air tanks, but they had no food and their water was running out.

And they had been stuck inside their spacesuit for nearly two days . . !

" We've got to help them !" Surgenor burst out in spite of himself and his earlier feelings.

" Not just them, we're in quite a mess ourselves if our ship is a write-off," Kelso replied. " And maybe theMVD types need help most of all. *Potemkin's* commander says they're no longer sane. He says they are not being wilfully cruel. It's just that nobody will allow anybody to take the responsibility of ordering *Potemkin's* crew back to their unarmed and defuelled ship in case they escape. Escape ! He says he's never seen such an advanced space neurosis before, and he doesn't know how they managed to get this far unless it was their fanatical belief that they were hunting traitors which kept them going.

" But this has got to be stopped," Kelso went on vehemently. " This sort of thing could start a war, and that would wreck our plan of—yeow !" He broke off, swore and said, " What a damned inconvenient time to get a belly-ache !"

Surgenor felt another twinge of regret at the size of the dose he had given Kelso, but he had not foreseen anything like this happening. He said curtly, " Have you any suggestions, Lieutenant ? I notice that accuracy of the missiles has fallen off badly since that first hit, I'd almost say they were shooting blind—"

" They are," said Kelso. " That first shot was pure luck. Their ship tipped over on landing and they camouflaged it with dust covers to wait for *Potemkin.* We are just below the horizon to them and they've been firing roughly in the direction they saw us come down. *Potemkin* is about two hundred yards on the other side of them from us."

Surgenor fought a brief, internal battle with himself, then came to a decision.

" Suppose we tell *Potemkin's* crew to circle around to us here. We'll take them aboard *Mizar* until something is worked out. It's against regulations, I know, but we'll just have to try and keep them from seeing too much of our equipment . . ." Surgenor left the sentence hanging as he suddenly remembered

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that *Potemkin* already knew everything there was to know, and who had told them.

There was an awkward pause, broken by Kelso.

" It won't work, sir. They're pinned down so that whether they try for their ship or try to get away from it they'll be picked off . . ." He grunted with pain, then gasped, " And we can't just up and leave, either, even it we wanted to, because as soon as we rose above the horizon we'd be a dead duck. There's only one solution, we'll have to capture their ship."

Surgenor thought for a moment, then said, " Granted. But how ?"

It was a simple, direct plan which Kelso put forward. By tracing back the trails of the missiles they knew the position of the MVD ship, and if they were careful they could get very close to it without being seen—they would be considerably aided in this by the fact that Deimos was fast moving into the night-side of its primary and the Sun, which was sliding down towards the limb, would be on their backs and in the opposition's eyes. The actual capture must depend on conditions on the spot, but Kelso had ideas on this, too.

" We're unarmed," said Surgenor quickly. " There's a pistol in the Captain's cabin, should I . . ?"

" No," said Kelso, " To a man in a spacesuit a chunk of rock coming at his faceplate is much more effective than somebody pointing a gun. So all of you, pick up any handy pieces as you go and push them, gently, ahead of you."

" Right," said Surgenor. " Let's move."

They switched on their suit receivers, pulled their helmets out of contact and moved off. Somebody on the MVD ship was screeching threats at them—they sounded like threats, but Surgenor's Russian wasn't too good—and the *Potemkin* commander, whose English was not good, was pleading desperately and incoherently for help. But they could give no reassurances, or even risk answering at all, in case the MVD ship might guess their intentions. Then Kelso, who had been cursing and groaning at increasingly frequent intervals, could not force himself to go on. He was doubled in pain and one arm was useless. Surgenor found himself in charge of the operation.

In the training manual there was seventeen pages devoted to techniques for close combat in vacuo. Surgenor had been tempted to skip that particular section as information for which he never expected to have a use. He was very glad now that he had read it.

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VI

Half an hour later they were in a cleft thirty yards from the MVD ship, and the two men who were operating the missile launcher clamped to its hull were under observation. Selby and Surgenor braced themselves firmly inside the cleft in the rock, then each grasped one of Murchison's legs. Thus anchored, the engineer was able to throw the loose rock they had gathered without the reaction from his efforts sending him spinning backwards. Immediately the last rock left Murchison's hand they broke apart and launched themselves in the wake of their makeshift barrage.

It was the longest thirty yards Surgenor had ever known.

The two men at the spidery framework of the launcher saw them only when the first rocks began bouncing around them. One made a determined effort to draw the gun strapped to his waist, but broke off to shield his faceplate from silently hurtling rocks. The other scrambled for the nearby airlock. Then suddenly they were there. Murchison landed on the man trying to draw his gun, batted it out of his hand—space gauntlets did not allow a firm grip—and disconnected his safety line all in one tangled blur of motion, then tossed him upwards out of the way. Selby caught his man in the airlock and threw him up, too—just managing to keep his own magnets in contact with the hull while doing so. Surgenor crashed into the launcher, converting it to junk in the process, then extricated himself. He went sliding around to the other side of the hull where *Potemkin's* commander had said there was a sniper. He waved for Murchison to enter the ship and cut control between the reactor and the control-room—he didn't want some MVD man to panic and take off with his men and himself on the outside of the hull—and motioned Selby to follow himself.

The man with the rifle actually nodded to him, thinking that he was his relief, probably, then continued to watch the little group of spacesuited figures huddled among the rocks a hundred yards away. There was a searchlight focussed on them as well, now that Mars was eclipsing the sun. Surgenor slid closer, then pounced. His hands shot to the quick-release catches holding the man's helmet in place and twisted. The man got the idea all right, his face went chalk white and he threw the rifle away. Surgenor wrapped his legs around the ex-sniper's waist, and with his hands still threatening the seal of the other's helmet, motioned him towards the airlock.

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Selby bundled into the lock behind them, just as Surgenor was operating the outer seal control. With one hand thus engaged the Russian must have thought he had a chance to escape—he started kicking and struggling violently. One of his threshing feet caught Selby in the shoulder, sending him spinning sideways.

Surgenor saw the projecting tank-bracket on the lock wall, and Selby's head towards it . . .

"*Selby, breathe out* !"

The seal was only half shut when Selby's helmet splintered. Surgenor had a glimpse of a contorted face, mouth wide open and eyes jammed shut, then he was flooding the lock chamber with air. He spun the quick-release fastenings of his prisoner's helmet, flipped it back, then smashed his gauntleted fist into the other's face. Air pressure was at ship-normal by then. He dragged both limp bodies into the ship.

Space personnel were accustomed to low-pressure air in their ships, it minimised the shock of decompression, or pressure-drop, in the event of a puncture. As Surgenor bent over him he could see that Selby's nose and ears were bleeding and that his eyes, though still tight shut, were wet as a result of boil-off from his tear ducts. Water blisters had begun to form all over his skin due to the vapour pressure underneath it, and it would be a while before he was goodlooking again, but he was breathing harshly and did not seem to be coughing blood. He must have evacuated his lungs when Surgenor shouted and equalised inside and outside pressure sufficiently to escape death or permanent damage. Selby would be all right. He straightened up.

Suddenly he made a dive for the gun at the prostrate Russian's waist : four spacesuited figures were emerging from the well. Then Murchison's voice came booming at him through the phones.

"It's all right, sir," he called, "They're harmless." He indicated a figure with its helmet thrown back and added, "I found this one in the control-room trying to shoot himself. The others were locked in their cabins—I made them put on suits." He tapped his head significantly. "They're sick men.

"But we've got to get out of here," he went on, displaying strong emotion for the first time since Surgenor had met him. "The reactor has been set to melt and the damper controls are smashed. We've got about twenty minutes . . ."

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Kelso's voice broke in on them: "What's happening? Is everything all right . . ?"

"Yes, yes, just a minute!" said Surgenor brusquely, then: "Murchison, get these people ready for outside! Sure this is everybody? Right, and help Selby into another suit, then go out and fish down those two we threw away outside. And Kelso, are you listening? Tell *Potemkin* everything is all right and to come over here and help with the prisoners. Everybody is to be brought to *Mizar* until we sort things out. I . . ." He allowed his tone to alter subtly. ". . . want to see about the Captain."

In the excitement of the past half hour Surgenor had forgotten all about the Captain. He had to get back to *Mizar* to make sure that the Ideal Skipper was placed neatly out of the way before the Russians started commenting on the fact that *Mizar's* crew were taking orders from somebody who wasn't there. He would have the Captain injured, he thought as he hurried towards the ship, suffering slightly from shock and a minor decompression caused when the missile struck the ship, and temporarily confined to his hammock. That should keep him out of the way nicely.

As to the rest of it, what he was going to do with the crew of *Potemkin*, and the MVD crowd, and how he was going to avoid news getting back of an incident which would almost certainly touch off the Hell-War, he did not know.

The holes in *Mizar's* plating were repaired very quickly by Murchison, luckily the missile had gone right through and only exploded among the radio gear outside—the damage had looked much worse than what it actually was. Surgenor had peeled Kelso out of his suit, discovered that he had a fractured ulna and put it in splints. The pilot's inexplicable—to him—belly-ache had died down. He had bandaged Selby's legs where the pressure-drop had caused distensions which might later, if untreated, become varicose veins. Knowing what he did about them, and what he intended doing when he got home, Surgenor wondered why he bothered.

Potemkin's crew had been attended to first and allotted the wardroom, and the gentlemen of the MVD were under deep sedation in the cabins of Kelso, Murchison and himself, when Selby came down to tell him that he was wanted in the control-room. Incredibly, the wardroom was empty when he passed it

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and *Potemkin's* commander, Colonel Dhiageviloff, was occupying the control-room with Kelso. The pilot spoke quickly :

" I'm sorry if I seem to be taking over from you, sir, but in this matter I happen to be better informed. Here is what we have decided.

" First : the MVD ship will be a heap of slag within a few hours, and too radioactive for the next fifty years or more for a close investigation to be made. Dhaggy here will note it in his log as an accident to an unknown ship and no more. We will not mention it at all. That way nobody at home will be any the wiser, and there will be no hot-heads screaming for war. It's crew, of course, will never leave Mars—after what they've been through they won't want to.

" Second : we have transferred sufficient fuel from our tanks to allow *Potemkin* to land on Mars." Kelso hesitated, looking a trifle apprehensive, then went on, " We will have to think of a good story to explain the wastage of fuel, but most of us are used to that now. The only trouble at the moment is me." He indicated his splinted arm. " I'm not sure if I can land *us* on Mars."

" You seem to have it all buttoned up, Lieutenant !" Surgenor began hotly, then suddenly checked himself. His chief concern had been to find a way to stop news of the clash on Deimos reaching Earth, now that worry at least was gone. " Very well," he said, then added drily," " I will take the ship down, I had intended to do so, anyway."

Kelso's eyes opened wide. " I didn't know you were a Pilot, sir," he said, then shot a rapid gabble towards the Russian. The Colonel looked greatly pleased and slapped Surgenor on the back. Slowly and thickly he said, " Thank you for fighting for us, Lefnet Commander. Though ignorant, you are a great man." He turned and hurried out.

" Thrust in five minutes," Murchison's voice announced from the wall speaker. " Strap down, all."

Hurriedly Surgenor took the Pilot's position and Kelso took his. He said, " I suppose that was a compliment ?"

" Yes, sir," said Kelso, and added, " We're landing in Syrtis colony."

Surgenor shook his head. " In Hesperia."

" Three minutes," said Murchison.

" No, sir," said Kelso firmly. " Syrtis, the Russian Colony. *Potemkin* is going to Hesperia. But maybe I'd better explain . . ."

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When *Mizar* pushed herself gently away from Deimos a few minutes later, Kelso had explained and Surgenor felt very, very happy. He was now a member of a secret society which numbered its members among the famous, possessed the usual recognition signals, and whose great motto was bigger and better treason ! He spoke suddenly :

" Kelso when we touch down, I want the best psychologist in Syrtis to come to the ship. It's very important."

" Yes, sir," Kelso said. " I know a good one—speaks English too."

He thinks I want him for the MVD people, Surgenor thought. *Let him think so.* The real reason was that Surgenor, too, had a secret to give away : the Principle of the Ideal Captain. When he explained the set-up on *Mizar* to the Russian psychologist, and reported on its succesful first trial, they might adopt it, too. And the Americans as well. Suddenly he laughed.

Surgenor the man who would form a secret society within a secret society — a brotherhood of First Lieutenants who were in reality Captains . . .

The way Kelso had told it, the first instance had occurred a long time ago ; two ships belonging to mutually unfriendly nations had found themselves in trouble together. They had helped each other out and kept quiet about it, and had decided in the process that being unfriendly was stupid. This idea had spread with incredible rapidity until now . . .

Every new invention or device or operating procedure, no matter what nation of origin of the ship concerned, was made public to every other ship no matter what their nation of origin. A ship's crew learning of a new device in this way would carefully feed the idea for it to their own governments, and in a very short time their ship would be equipped with it also. There was no classified information in space, and space technology forged ahead of the ground-based sciences. But that was not all.

Theoretically there were three seperate colonies on Mars : the Russian, American and British. In actual fact each colony was made up of equal numbers of Russians, Americans and British. And no matter where a Mars-bound ship put down, it was home. Frequently equipment which was scheduled for, say Hesperia, could be put to much better use by the British-American-Russian engineers residing in the Syrtis colony, and a naval vessel would land in what was theoretically Russian territory. Such had been the case on *Mizar's* current trip, and

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Potemkin—bound for the technically British colony—had left a few packets that just had to go to Syrtis on Deimos for *Mizar* to take down.

Space was a bright, black curtain, Surgenor told himself, and the things that went on on the other side of it were just nobody's business !

Earth was an uneasy balance of heavily-armed powers where nobody trusted anybody. That disgust stayed with the highly-intelligent, stable and morally sound individuals who came out into space—for a little while. Because they were what they were it took only a statement of the facts—an outline of the position and aims of the secret brotherhood among spacemen—for them to feel it their bounden duty to join the ranks of their fellow traitors. Mars was the pointer of things to come.

Given another generation of intermarrying among the colonies and there would be no nationality on Mars but Martian. The few officials who visited the planet in the meantime—the very few, that was, who braved the trip and were yet too narrow-minded to embrace the ideals of the brotherhood—would have a convincing show put on for their benefit. But soon, maybe thirty or forty years, this secrecy would no longer be necessary.

Surgenor remembered Kelso's thin, intense face, the awkward gesticulations with his good arm and the disparaging tone of his voice as he tried not to show his true feelings . . .

". . . On Earth we're heroes," he had said, grinning sardonically, "and when we retire we're still heroes. Nothing's too good for us—the best jobs, the highest positions, you've seen it yourself. The whole political field—Governorships, Foreign Office, Cabinet appointments—is lousy with retired spacemen, and in every country. If we can keep that up for a little while longer it will be impossible for *anybody* to start a war . . . !"

Surgenor was really and sincerely sorry that he had given Kelso a belly-ache.

James White

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STABILITY

This month we are pleased to present yet another outstanding story by Lester del Rey, involving the power of imitation and duplication. It is so cleverly conceived that before you reach the final climax you will be trying to work out just how the author is going to extricate his characters from their dilemma

By Lester del Rey

Doc Baron straightened up and made motions across his forehead with a damp handkerchief, but it did no good. Sweat still came running down from his greyish hair, over the bridge of his short nose and into his little moustache. He scowled up at the glaring white curtain that was the dazzling sky of Venus and shook his head. In seven days there, he'd lost fifteen pounds. His short figure was still pudgy, but his clothes no longer fitted.

Darn it, why did he have to be doctor, biologist and general all-around scientist on this first expedition to Venus, anyway?

But he was grinning again as he dropped back to the curious plant he was studying. Things could have been worse. At least, he didn't have to wear a pressure suit. In spite of all the talk of Venus's poison atmosphere it had proved to be about the same as that of Earth—which only proved again that appearances can be deceiving. The planet was habitable enough, if a man could breathe.

Then he forgot it as he went back to studying the plant. So far no animals had been found, but the plants made up for it. They were completely unstandardized—no two were exactly alike; and they were even more unpredictable. Some-

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thing like a poison-oak plant had been here yesterday ; today it was replaced by a growth that most resembled a cactus with wooden branches added. At first, Doc had suspected a terrifically rapid growth and decay. Then he'd considered the possibility that the plants moved around during the ink-black night. Now he was beginning to doubt that. The plant had changed while he watched.

Doc cleared his throat, cursing the humidity, and trying to get rid of the post-nasal drip that had grown worse, together with his asthma. Hmm, interesting—the cockeyed plant was turning now into what, without a doubt, was some kind of bush.

Behind him, footsteps sounded, uncertainly. Walt or Rob must have got tired of waiting for him to come back to the ship. Doc crooked a finger over his shoulder. "Take a look at this."

The steps halted and there was the rough insufflation of breath. Doc turned around casually.

It wasn't Walt or Rob. The naked body before him was short and pudgy. The face, under steel-grey hair, was round and good-natured, and there was a little moustache, trembling in a doubtful smile. The creature was an exact duplicate of Doc, except that the left arm came to an end at the elbow and was replaced by something like a long, leafy vine. The vine quivered and began changing into a forearm and hand !

Doc's mouth flopped open, and his legs buckled, sending him back against the spines of the plant. Then, as tendrils reached for him with pricking thorns, he yelled and bounced away and stood upright.

The creature stuck out a hand—the other already perfect—and grinned again. "Hello, Doc. We go back to ship now, eat good, eh ?" The voice was grating at first, but quickly adjusting to Doc's own tones.

Doc began wheezing asthmatically, and a giggle stuck in his throat. His fingers groped for a gun he'd forgotten to bring along. There was no way to escape, either. He'd have to humour the creature along. Humour him, humour him . . . He cleared his throat, and somehow found his voice.

"Sure, sure, eat very good. But I'll go first to tell the others. Can't go like this ; two of us is one too many. I'll go and get food . . ."

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"Too many, eh?" The creature's voice was smooth now, but indecisive. Then it shrugged. "All right. Then I kill you!"

But it seemed no surer of itself than Doc felt. Like Doc, it seemed frozen to the spot. Doc's head was churning two plus two to get a fantastic four. Life forms here were unstable; they could change shape at will. And this thing had decided to change to the shape of a man—the shape of Doc Baron!

"I'll have to kill you, won't I-?" the creature asked, still uncertainly.

The uncertainty somehow unfroze Doc from his fears. He shuddered, caught his breath, and lunged forward. His shoulder collided with the thing's stomach, and they both went down in a squirming heap. The hands of the creature were groping, while its threshing legs found leverage and it rolled on top of Doc.

Doc's hands were too sweaty to hold a grip, and his heart seemed to burst from his chest. Then he closed on the neck of the creature, and he began squeezing savagely. The thing began beating at his stomach—and something crept to Doc's throat and began tightening. The plant was helping the creature!

Doc beat at the ground and tried to writhe away, still holding his grip on the other's throat. His senses were swimming and reeling, and his lungs seemed about to burst. Could the imitator of his body be choked? Did it need to breathe? He gripped tighter, convulsively, not daring to think.

Then everything turned black.

When he came back to consciousness he lay for long seconds tasting the sweetness of even Venus's air. It was only gradually that he thought again of the inimical creature. His eyes snapped open and he turned on his side. Then he relaxed. A few feet away, a naked image of himself lay sprawled out awkwardly, with a rough stick of wood jabbed deep into its throat!

He had no memory of jerking a limb off the plant and stabbing the other, but he wasn't in the mood to question his luck. He knew that men went on acting for seconds after consciousness seemed to leave. Automatically, he reached for a cigarette. It was then he found he was as naked as the other.

But he spotted his clothes almost at once, between himself and the creature's body. He puzzled over a living being that

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could bother stripping him while it was dying, but Venus's psychology wasn't his speciality. There was blood on the clothes, where the thing had bled on him after he stabbed it. He noticed that it was as red as his own would be.

For long minutes, Doc lay there, watching for a sign of life. Twice he thought he detected shallow breathing, but it must have been eye fatigue playing tricks on him. Three times he started up to investigate closer, but each time he stopped; it was too much like examining his own corpse.

Finally, almost convinced it was safe, he reached hesitantly for his clothes. He made a messy bundle of them, ducked through the clustering vegetation to a clear spot where he could still watch the enemy body, and began a frenzied dressing. His hands trembled too much to tie the knots in his shoelaces. He gave it up, took one hasty look at the prone body, and broke into a shuffling run toward the ship, two miles away.

He wanted the familiarity of the normal world again. He had to see Captain-navigator Rob Winchell scratching at the rash he'd picked up from some plant, with a face contorted at the mixed pain and relief. He needed the assurance of watching Engineer-geologist Walt Meek lifting a coffee cup with a stiff little finger that he'd mashed in their one minor repair job. He hungered for their eyes on him, telling him he was human.

Doc stopped, breathing hard, as he reached the top of the little hill that looked down on the *Aphrodite*, feeling relief at seeing the ship still there. Then he made out the thin, whipcord figure of Rob in the port, and could even see the worry on the dark, lean face. Doc followed Rob's gaze, and saw Walt coming up another pathway, his yellow hair blazing in the light of the sky. The boy was waving, his boxer's figure glistening as if oiled, and Doc could imagine the grin on the good-natured face.

Doc let out a whoop and began running toward them.

An hour later, Doc felt better. But the worry lines had deepened on Rob's face, and the boyish look no longer showed on Walt. The engineer refilled their coffee cups for the fifth time automatically, considering the story. Then he nodded. "It sounds crazy, but I guess I believe you, Doc."

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" So do I," Rob nodded. Then he shook his head as Doc started to relax. " Except for one little question. How do we know it *is* Doc who came back ?"

There was a gun in Rob's hand suddenly, and he motioned Doc back sharply. " Sit still, Doc. I'm serious. The thing had the plant on its side—and you're not the fighting type. I've been noticing the way the plants changed, too, and wondering if there wasn't some intelligence there. Obvious answer now—plenty of it, including telepathy. If the thing picked up English in such a hurry, how much else did it get ? Suppose it killed you off, and came back here with a slight twist on the story—which it might be smart enough to do—where would Walt and I be tonight while we were sleeping ? It'd have the ship in two minutes—and it might just like that idea ! Doc, are you a monster ? If not, prove it !"

Two pairs of eyes were boring into him as he began to sweat again. Prove it ! How can a man prove he's himself ? " But—"

Walt jerked suddenly, and quick words spilled from his mouth. " *Chu vi parolas Esperante* ?"

Doc could have kissed the boy. *Jes*," he answered, frantically digging the language out of half-forgotten memories. " *Jes, mi parolas Esperanton, sed malbone.*"

Walt let his breath puff out in relief, but Rob sat with the gun frozen on Doc's stomach. The captain's voice was as tense as before. " Nice try, Walt. But don't forget the thing must have been a telepath. You knew the answer—Doc knew it. Means nothing !"

Rob frowned a moment longer. Then he got up, keeping the gun centred on Doc. " Walt, get me that brown and grey medical book of Doc's—the big one I was glancing at a week ago. And Doc, I want you to write down the names of the bones of the human foot—all of them ! And no excuses about forgetting."

When Doc finally handed over the sweat-stained paper with trembling fingers, Rob opened the book and began making a comparison. Doc bit his lips and waited, remembering how many years it had been since he'd memorised the bones, but the younger man finally nodded, and dropped the gun.

" Okay, Doc," he said. " Glad you won, and sorry we had to do this. This is good enough for me, though—neither

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Walt nor I knew them, and it wasn't the sort of thing the monster might want from your mind. I'm satisfied."

" Me, too, Doc," Walt told him, letting his face relax into a grin.

Doc wanted to meet their new confidence, but Rob's words and logic had jolted him too severely. He went back to the bunkroom and came out a minute later with two books.

He hated himself as he spread the books open to the index sections without looking at the other contents. " I'm not satisfied," he told them brusquely. " You were both out alone at times ; it would be easy for the monsters to get you and come back *without* saying anything. Walt, I want the ten best refractory rocket tube linings in order of endurance. And Rob, give me the duration of the most economical course from Earth to Mars, ideal conditions, in a rocket."

Walt reached out for paper fairly confidently, but Rob drew himself up angrily. Then he grinned wryly, and nodded. He'd demanded no alibis from Doc and would ask for none himself.

A few minutes later, Doc sighed gently and reached for his coffee, throwing cigarettes on the table. " We're all human," he decided. " Thank God, we're—"

" Rob ! Walt !" The weak cry came from outside the ship, thick and faint, with a mixture of hope and utter despair in it. But with all the distortion, it was still Doc's voice, and the hair on the back of his neck rose abruptly as he realised it.

Rob hit the port first, the automatic in his hands. Doc glanced over his shoulder to the outside, and his stomach corded into knots. The stick was gone from its throat, leaving a raw gash, but not as deep as Doc had thought. It had stopped bleeding, but the creature swayed and wobbled as it clawed its way toward the ship. Then it caught sight of Doc, and it stopped, a perfect mirror of stark horror and fear in its eyes.

" Oh my God ! I should have known. Rob—Walt—God, you've got to listen. Give me a fair trial !" The thing stopped fighting a cough, and a thin froth of blood came to its lips. Then it seemed to gather strength. " Rob, remember you took me to see your family before we left. *Me*—not that monster behind you ! Remember the mole on your kid cousin's left hand . . ."

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The gun in Rob's hand barked suddenly and repeatedly, driving the pleading figure back and to earth with the shattering blows of lead in its stomach. It lay there, disbelief and horror in its eyes, clutching at its wounds. Rob reached back for another clip, and it moaned—not with pain, but with sheer hopelessness. Somehow, it pulled itself half erect and began dragging away, leaving a gory trail. A few yards away, there was a burrow of some sort, such as an animal might have made—or perhaps some washing of the rains—and it was heading for it. It staggered and groped. For minutes, it lay almost quiet, just outside the burrow entrance. Then, with a convulsive heave and a moan that seemed to issue from the mouth of hell itself, it disappeared into the crooked little shaft.

Doc was aware that he was being sick, and that he had somehow got outside the ship. Beside him, Walt was in little better condition. But Rob's tortured eyes stared out of an immobile face.

The captain sighed, deep in his guts. "Anyone who wants to investigate that corpse can do it ! But it's dead—I put all seven slugs into it ! And the sore on its throat didn't heal. It . . ."

Then his shoulders shook convulsively and dropped against the side of the port, while his breath wracked back and forth in great gulps, and the words seemed to jerk out of him, one at a time. " He—*left* hand . . . why I knew he was—fake ! Cousin has—mole—mole on right . . ."

Walt had grabbed his shoulders, but the captain was getting control of himself, and sobered almost instantly. " Sorry. It got me, having to kill something on just that. But it was the right hand—used to blame his left-handedness on that. He must have got part of the memory from us, had to guess at the rest."

" No, Rob," Doc told him, hating his own need to be honest. " I'm afraid he got it from me—I thought it *was* the left—probably because I seem to remember seeing his wrist watch right over it. But I wasn't thinking of it—at all—when he came out with it. I haven't thought of it since we left Earth ! He wasn't reading minds—he was digging into his memory, whatever it was."

" But that means—" Walt began. Doc nodded, and Rob's lips whitened.

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"It doesn't mean the tests we used weren't sound," Doc said grimly. "It simply means the creature might have been able to pass it, too. Maybe they don't imitate forms, but literally duplicate us—cell by cell, right down to the brain."

Rob stared doubtfully at his automatic, toward the hole, and back to Doc. His face tensed again, but he nodded. "Go set up your microscope, Doc. I'll be back."

His face was grey when he came back from the burrow to give Doc the specimens. "It's dead," he told the two others.

Doc began his comparisons and blood tests under their watchful eyes, knowing in advance it was useless. He was right. Cell by cell, there was no difference between himself and the creature. He'd been hoping that the cell nucleus might be foreign in some way, but it was as human as his own. And the blood reaction showed that it might have been from his own body. The duplication was perfect, even at half a million times magnification.

Over the half-tasted supper, he could see their eyes weighing him, and knew that his own eyes were weighing them with the same fears. They watched the pitch-black night fall in silence, and turned into their bunks by common consent, each with a gun within easy reach. Doc handed out sleeping pills, and was surprised when they worked.

He never could remember much about the nightmares, beyond a vague composite impression. He was something without definite shape, changing at will, sometimes almost insensate and sometimes almost impossibly intelligent. He was bounded by only one rule, traditionally upheld by something called the Council; no member of the planet's organized life could ever take exactly the same form as another member at the same time. He changed and altered, until a new and unknown form appeared, where the Council rule did not apply. He felt hunger creeping over him, surging up until something snapped sharply . . .

Doc came awake suddenly with the sound of a shot in his ears, to see Walt jerking up from an opposite bunk. They swung toward the third place. Rob was gone! The night was almost over, and the dim light of dawn showed the crumpled sheets, but no sign of the captain.

By common consent, Walt and Doc were scrambling into their clothes and heading toward the airlock, just as sounds

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came from outside. Rob came in stealthily, to stop abruptly as he saw them. The captain's gun was half lifted, but he let it sink slowly, while his other hand began locking the inner seals of the port.

"Well?" Walt's voice cracked on the word.

Rob shrugged wearily, but his haunted eyes met them squarely. "Heard something moving around, and thought maybe the creature had revived. Outside, I thought I saw something, and took a shot at it. Must have been a shadow, though. The thing is still dead—cold dead."

Doc went back for the books again and gave the almost meaningless tests, while Walt began making a hasty breakfast. This time, Rob answered three questions before the other two nodded reluctantly. Worthless as the test was, perhaps, they had to accept it for want of something better.

"It'll be light soon—" Walt began, but his sentence chopped off in the middle.

From the airlock, faint sounds reached them, as if someone outside were trying to get in. A ghost of a voice reached through to them, pleading. "Doc?"

A harsh groan ripped out of Rob's throat, and he was out of his chair, rushing toward the lock. His hands were clumsy on the locks, but he seemed to rip the seals aside by sheer frenzied effort.

Outside there was nothing! Across the little clearing, a bush vibrated, as if just disturbed, and they heard what sounded like some object running off through the tangled growth. Rob's gun was hammering as he blasted at the sounds but with no result, and the distant snap of twigs and rattle of stones faded into the normal sounds of Venus.

Doc looked at his hands, surprised that they were no longer trembling. A man could get used to anything, he decided idly. Or the endocrine glands get tired of responding to stimuli.

"Dead?" he asked, at last. "Or playing possum? Well, it will be light soon. We can go out then—all three together from now on. If the corpse is there, we'll burn it."

His eyes were on the captain as his dead-steady hands lifted coffee to his lips. The liquid had no taste for him now. He swallowed automatically, considering. "What'll we find out there, Rob?"

The captain dropped into a chair opposite Doc and threw his empty gun on the table. "Your corpse, at least, Doc. Maybe another. I thought I killed something, anyhow.

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You're right. I was shooting at myself out there. I heard something, and went out looking for it. I guess we got duplicated about the same time."

The story came out as levelly as if Rob were dictating an account of a routine landing. He'd stayed behind, overtired from writing up the log of their discoveries. He'd wandered around outside for a while and finally settled down comfortably on some mossy turf. Apparently he had gone to sleep. There was a confused memory of nightmares in which he'd seemed to be fighting, then of complete unconsciousness in dreamless sleep. He'd awakened suddenly to see the creature bending over him with a rock in its hand. One of the vines near him had apparently grown thorns that accidentally awakened him just in time.

He'd jerked upright at a full run and just beaten the other to the ship where he could get a gun. It had been on his heels until he had the weapon, but that had sent it rushing off into the thickets.

"Should have shot it," Rob finished evenly. "But like Doc, I couldn't get used to fighting myself. It had stolen all my clothes. I just got dressed by the time Walt yelled from across the clearing. When I got to the lock, you were coming over the hill, Doc. I kept mum, figuring I could stay up alone and trap the thing at night—better without you two rolling around outside with me. When it came sneaking up, I shot it and dumped its body into the burrow with the other."

He sat quietly, watching for their judgment. Doc poured coffee for the captain and passed it silently. Walt sat white-faced, seeming to be fighting to say something. Finally the boy gave up and held out his own shaking cup. Doc wondered what it felt like to be outnumbered two to one by possible monsters. He knew he was human—maybe Rob did, too—but the engineer couldn't be sure of them.

"It's light enough," Doc decided.

They went out through the lock cautiously, with Walt bringing up carefully in the rear; their backs were exposed to his gun. Outside, there was no sign of whatever had come to the ship earlier. There was only the normally changed growth around the ship and the entrance to the burrow showing up darkly beyond. Venus's sky was already blazing with light.

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They were halfway to the burrow when Walt suddenly gasped and pointed to the left, beside their path. Doc turned his head. Something had come out of the brush, moving like an animal. It had vine tendrils trailing from it, and its legs were more like roots than anything else, but it moved by its own volition.

Then he saw the cause for Walt's amazement. The creature faced them, a lump of its substance changing as they watched. Features began to emerge, first a nose, then a slit for a mouth, and finally eyes and ears. A fine growth appeared on the head, quickly becoming rustily grey hair. The face was rapidly becoming human in every way, but with a strangeness that might be due to its attempt to take a composite pattern from all three of the men.

Now the lips opened, revealing white teeth, and the eyes blinked at them. The creature coughed, clearing its throat.

Walt's gun-hand was coming up, but Rob stepped back and caught it. "Wait," he snapped. "It's only the head, so far. We've got time enough yet."

The creature tried its voice softly, a faintly mewing sound. Then it faced them determinedly. "Hard communicate," it said, the words thick and clumsy. "Can't reach—minds?—senses? Council worried. Council wants report—account—immediately."

Doc had flinched at the mention of the Council, but now he checked the words that came to his lips. The creature was trying to turn back. Where the neck joined the woody body, a series of violent contractions had begun. They spread through the whole body, setting it to a series of writhings and twitchings. The face was grimacing and contorting, and a series of meaningless sounds drooled out of the lips.

Abruptly, the face became loose and expressionless, the eyes closed, and the lips hung open. The bodily contortions went on, with an increasing evidence of effort. But the line separating the neck from the body remained.

The creature stopped for a second. Then suddenly it reared up on its rear stems or legs, hesitated, and brought the flaccid head down sharply against a large rock. Brains spattered out, with a gush of blood that began red and was gradually infused with a green ichor. It twitched a few times and lay still.

Doc pried his eyes away from it, not even trying to understand. He heard the breath whistle out of Walt, and saw Rob

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come out of a rigid stiffness. They looked at each other, and by common consent turned silently toward the burrow. They could talk about this fresh horror later.

At the burrow entrance, Doc hesitated again, steeling himself to face the presence of his own dead body—or worse still, its absence. He let the other two slide down the twisting little tunnel first, shining flashlights down it. Finally, he fitted his stout body into the entrance and followed to where a larger part had formed a cavelike place.

There were two bodies there—his naked corpse, and the clothed figure of Rob's imitator, both stiff in death.

Walt was staring at them sickly. "Then what was the thing outside the lock?"

"Yeah." Rob's eyes were glued to his own duplicate. "The lock sealed now, Walt? I should have checked."

"I locked it," the boy answered dully. "I—God!"

From above them, the sound of footsteps drifted down the passage—soft footsteps, rustling on dead leaves!

Walt's suddenly white lips opened, but the sound of his voice didn't come from them. It came from the mouth of the burrow. "Doc? You're down there—I know it. Doc, you've got to help me. You've got to kill that phoney with you! You can't desert me. I'm real, Doc. Don't let them shoot me, like Rob shot that other! God, Doc, you don't know what it's like—a week of it, going crazy, hiding out, knowing *that* was with you, Doc!"

The voice ended on an almost insane quaver. The horror of the voice was matched by the desperation on Walt's face in the light of the torches. Doc shook his head, smiling faintly at the boy. It was amazing how the same resilience that had helped him overcome his squeamishness at operating on living bodies was now taking over, making even this situation bearable.

"Take it easy, Walt," he called up softly to the creature—or the real Walt—above. "We'll try to be fair. We're all in pretty much the same boat." He heard a sigh, almost like a child finding haven at its mother's breast, and turned to the white-lipped boy. "All right, you might as well tell us the story, kid."

Walt's story was almost familiar by now. He'd been attacked, apparently, the first day on Venus. He couldn't remember more than some fuzzy, drawn-out struggle, and

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waking up to find another unconscious body of himself in the tangled vines. He'd hit it with a rock to the temple and spent the day trying to steady down before going back to the ship. He'd kept quiet, knowing they wouldn't believe him. But whenever he was out alone, he'd been hunting it—it had obviously survived the blow—and trying to kill it or keep it far from the ship.

" So that's why the scratching on the lock," Doc said quietly. His eyes measured the distance, while his brain ticked over his knowledge of anatomy. The automatic butt in his hand made a soft thud as it suddenly contacted Walt's skull, and the boy dropped with a soft moan. Rob's gun came up toward Doc, wavered, and sank again. Rob was willing to let Doc play it his way, for the moment.

Doc called up the passage. " What was the first place you lived in like, Walt ?"

" A little yellow house, five rooms, with green shingle. It had a real well," the voice above quavered down. There were more details, but Doc cut them off as Walt began to revive. He waited for the boy to retain full consciousness, and repeated the question to him, while Rob nodded sudden understanding.

The accounts were a bit different, but the details were the same. And no telepathy was possible—Walt had been unconscious, and the other two hadn't known.

There was no way of telling which was real and which was a monster—for any of them !

A scrabbling noise above them changed to the sound of a body sliding down the passage, and a naked figure appeared in the light abruptly. The second Walt's face was matted with dirt and a gory wound at the temple, and the eyes were filled with stark terror and lunacy. It stood there, mouthing at them. Doc drew back, knowing that the uncertainty of waiting out there had been the final straw to the week of exposure and terror. The creature had been driven wholly mad. He tried to think of something to soothe it.

But it wasn't waiting. With an animal cry, it charged them !

Rob's gun spoke once, viciously in the closed space. The naked figure of Walt halted in mid-stride, a gaping hole appearing in its forehead. Then it sank down across the two other corpses.

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Rob stood with the gun still pointing at it. He shook himself and looked at the others. " The same thing—always the period of unconsciousness. Does that mean we're all fakes, and that the shock of adapting to human form was too much for us—that it knocked us out for a while ? Or doesn't it mean anything ? Damn it, we must be real. We're the ones who always reach the ship. We're used to this form of body—naturally we handled it better at first. The imitations lost because it took too long to learn."

Doc dropped down beside the last corpse, examining it. Exposure had told heavily on it, exactly as it would have done on a real human body. He straightened out the arms, looking at the mangled, stiff little finger.

And suddenly he was on his feet, grimly facing the facts he had overlooked so long. " No, Rob—we're at least partly monsters. Walt hasn't been favouring his finger lately—I never noticed, but I can remember his bending it when he picked up a cup last. *This* is the real Walt—with a broken finger still there. And you haven't been scratching the rash—it's gone. But the arm of your corpse still shows it. They duplicated our bodies, all right, but not the things that were wrong with the bodies. You're both fakes !"

Walt gasped, but Rob cut him off. " You're a liar, Doc—because I know I'm myself. But you're absolutely right, all the same. I don't have the rash—haven't even thought about it since the incident. And your asthma is gone !"

They faced each other. Like Rob, Doc knew he was a genuine human being, but he had to admit that the asthma and post-nasal drip were gone. He was a monster, as they were monsters. No matter how clearly he could remember his first impressions of his mother's arms or recall the damaged form of a particularly interesting case of *tabes*, he was only a fake.

Walt's lips were still white, and his fingers were drawing blood where the nails bit into his palms, but the boy was showing the sound stuff that has been so well duplicated. His voice was almost as normal as Rob's. " Then we'll have to face it. We can't ever go home !"

Rob started to nod, but his eyes were questioning as they turned to Doc.

Doc was remembering the human-headed plant-animal and the impressions he'd had on reviving. He was thinking of his

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dreams and the worry of the so-called Council. But mostly he was thinking like a trained biologist considering a freak form of life.

He relaxed slowly, breathing in the wet heat of the air that no longer bothered him, though there was sweat in the creases of fat that still remained on his abdomen. "All right," he agreed, "we're monsters. At least on Venus, we are. That poor damned plant-thing. It didn't have a chance. Neither did whatever we came from."

He laughed suddenly, almost clinically aware of how strange and yet natural it sounded. "We're monsters," he repeated. "Venus has nothing like us. Here all life is unstable—all can change form. It doesn't matter what change takes place—even from intelligent to non-intelligent—because sooner or later it can change back again. Life here can duplicate any organism perfectly; telepathy isn't the answer, but probably some strange form of cellular resonance. It becomes the other form in every way.

"Now it makes one mistake—it duplicates an Earth form. But Earth life is completely stable, so a perfect duplication must be stable too. It's caught—trapped by that stability. That's why the plant-thing had to kill itself—it couldn't change the altered head back to its normal form.

"So we're stable. We've had a few imperfections removed, but cell by cell we're exactly what our originals were. Even our reproductive cells must be perfectly duplicated so that we could have the same children our originals might have had. And we can't hurt anyone else, because we can't change again, any more than our originals could."

He grinned as slow comprehension spread over the two other faces. "We're going home," he told them. "We're going home a little better than we came!"

They climbed out of the tunnel and headed for the ship, knowing that there'd be an emotional reaction later, but now filled only with relief. They reached the lock and Walt unsealed it.

Then Rob chuckled. "It'll be tough on Venus life, Doc," he decided. "Unless it gives up imitating men. Think what all the invalids and hopeless cripples will make of this chance to be whole again. Watch out Venus, here comes Earth."

Doc echoed his chuckle, breathing freely and caressing his old familiar paunch. And the three humans went into the ship.

Lester del Rey

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THE MULES

Author Sydney Bounds has been a professional writer for more years than he cares to remember, although his main stories are in the detective and western fields. However, science fiction was his first love and he still keeps in touch with this field with brief cameos like the one which follows

By Sydney J. Bounds

From his vantage point, Howard looked down at the desert. Fine red dust stretched like a carpet in all directions ; pancake-flat to the north and west ; rolling dunes to the east ; only in the south was there any variation. Here, the dust crumbled away at the edge of a canal, half-filling it—beyond, the red carpet swept on to the horizon.

Howard turned his gaze to a cloudless sky. Season's late, he thought. The season, to a colonist, meant one thing only—rain. A light wind blew, sifting the sand ever finer ; he was relieved to see no sign of a dust devil.

He made his way cautiously down the hill. This planet was old and apparently-solid rock could turn to dust under a man's weight. Not that Howard was weighty—his five-feet-eight consisted of lean flesh over a spindly skeleton, topped by ginger hair.

He walked to the brink of the canal and stared into it. Dust was piled high. A few strands of vegetation hung limply from eroding walls. There was no trace of water.

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He dreamt of the past, imagining deep-flowing water, alien barques with tall masts and billowing sails. It could have been, he thought, remembering earlier finds, hulks that collapsed at the touch of a finger. Now—how many centuries later?—the colonists faced the same problem of planetary transportation. Howard believed the canals were a practical proposition, despite the difficulties involved in clearing them and melting the icecaps. And he was determined to succeed.

Of course, there were other snags. Lawrence was pushing his sail-craft, which were cheap and easy to mass-produce—a board suspended between four enormous balloon tyres, a twenty-foot mast and plastic sail. Lawrence would put up formidable opposition.

Then there were the Mules, remotely human, tall and thin with long, sad faces. Obstinacy was their characteristic, and without their co-operation, the canals never would be cleared —the colony simply could not provide a big enough labour force.

Howard began the long walk back to Porthterra. Arriving, he pulled off his filter mask and spent a rapturous five minutes in an oxygen tent. Early on, Earth had decided that colonists must adapt to local conditions and had refused to allow the building of domes with a self-contained atmosphere.

Coming out of the tent, Howard ran straight into Lawrence. The sail-craft promoter was stout, balding, and carried a lingering smell of unwashed flesh.

"Well," he boomed sarcastically, "if it's not the great builder himself come to pay us a visit! And how is business? If a mere land-lubber may ask. The Mules are co-operating, I trust?"

Howard's lips clamped shut. At least Lawrence couldn't boast in that respect; he was a petty hitler with a native complex, and the more he ranted and roared, the more obstinate the Mules became . . . if that were possible.

Lawrence chuckled. "Your foreman was in from Site Three—apparently the Mules are acting up again."

"Thanks," Howard returned grudgingly. "I'll get out there right away."

"Take one of my sail-craft, if you want. Save walking."

Howard shook his head. He didn't believe in accepting help from the opposition.

"You will—next week." Lawrence's tone held a challenge. "Governor's council . . ."

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Howard kept moving over the red sand, filter mask adjusted again. The cold struck through his thin cotton shirt and denims, left him with a numb feeling. He balled his fists. Governor's council meant he'd have to make a progress report and, unless he pulled something out of the bag, the canal project would be dropped. No wonder Lawrence was laughing.

When finally, he reached Site Three, work was at a standstill. The colonists stood glumly on the canal bed, staring at deepening drifts of sand. About fifty Mules lined the top of the canal. Brandon, his foreman, came up the steps, a thick-set man with dark, curling hair.

" The men have no heart for the work," he reported, voice muffled through a filter. " Soon as we clear one section, the Mules follow behind and fill it in again. Damn, perverse lot !"

The old story, Howard thought wearily. Tell a Mule one thing—and he did the exact opposite.

" I'll have a word with them, Brandon. Keep the men at it."

He walked across to the Mules. Their thin brown bodies naked but for sandals and loin-cloths, they leaned on long-handled shovels and waited for him. Howard felt sympathy for them ; once, they must have been a great race—the canals proved that. But conditions had been against them, and now there were only a few thousand left on the entire planet.

As usual, there was no obvious leader, so he addressed himself to the nearest. He communicated by sign language, which the Mules had learnt at a quite uncanny speed.

Help clear the canals and you will receive dried fruits and vegetables.

The Mules nodded their long, sad heads in unison. Extracting food from Terrans was a lot easier than grubbing it out of the soil. They restarted work—filling in the canal !

" Oh, no !" Howard ran desperate fingers through his shock of ginger hair.

There must be some way to make then understand . . . no, they understood well enough, but, being Mules, persisted in doing the opposite.

" Bloody hopeless lot," Brandon said, and raised his mask to spit in the sand.

" We can't do without them. Somehow—" Howard took a deep breath and made fresh signs.

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Fill in the canal. Fill it in !

He grabbed a shovel and demonstrated. The Mules went on shovelling sand into the canal . . .

Howard's face was red.

"Well, at least they're doing what I told them, even if it's not what we want !"

He left Brandon and Site Three and walked slowly across the endless red dust, turning over in his mind this new contradiction. There had to be a reason for it. The Mules *never* did what they told. They were just plain obstinate. So . . . ?'

Back at Porthterra, Howard spent a few minutes in an oxygen tent. Weariness fell from him. His lungs,half-starved on a naturally-thin atmosphere, filled with rich gas. He grew lightheaded—and the solution clicked into place with startling clarity. He knew how to control the Mules !

He was still feeling good when he left the tent, but not for long. Knowledge was one thing ; putting it to use another. The governor's council was imminent—and Lawrence would stop at nothing to push his sail-craft. He might even sabotage the canals.

A plan began to form in Howard's brain. Lawrence, in his own way, was obstinate as any Mule. He decided that Lawrence was the very man to help him !

He found his rival making adjustments to a new machine, and slapped him on the back with a great show of bonhomie.

" I've just learnt the Mules' secret," he confided heartily, " and it's going to make all the difference. From now on, my canal clearance will go ahead at express speed. I'm sorry for you, of course—afraid it'll mean the end of your sail-craft business."

Lawrence straightened, slowly.

" Oh," he said. " What makes you so sure ?"

Howard laughed.

" Why don't you run out to Site Three and see for yourself ?"

" Perhaps I will," Lawrence said, a gleam of cunning showing in his eyes.

Howard walked off, whistling. From behind cover, he watched Lawrence run up a sail, push off and dive flat on the board. Then the wind dropped and, cursing, Lawrence repeated the performance. The wheels began to turn.

Howard watched him out of sight before going into the canteen. He ate well ; food had never tasted better, not with Lawrence working for him . . .

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Tired, but satisfied, he found his bunk, stripped and crawled between the blankets. He slept like a baby, a broad smile on his face.

Brandon scratched his head.

" Beats me how you've done it. I still don't see *why* the Mules are co-operating."

Howard said, smugly : " Our thanks are due to Lawrence. Without him, it never could have worked."

He drew luxuriously on a cigarette and looked at the progress charts covering one wall of his office. Things were really moving. The main canal was all but cleared, and water had begun to trickle through from the poles.

" I always thought the way the Mules picked up our sign lingo was a little too good to be true. Then, when they did what I told them, instead of what I really wanted, I guessed the truth. They weren't reading our signs at all . . . they were reading our minds !"

Brandon started. " You mean, the Mules are telepathic ?"

" Not exactly. If they were true telepaths, we'd receive their thoughts, too. No, their talent is restricted to mind-reading. So, being Mules, they do the opposite to what we think. That's why it didn't work when I told a deliberate lie—because I wasn't *thinking* that at all."

" Lawrence, now—he really wanted the canals blocked, and when he interfered the Mules reversed tactics and began to clear them ! That's why I've kept away from the job and pulled you inside—it would never do to confuse the Mules."

Howard grinned.

" It was easy enough to plant the idea in Lawrence's mind, and as soon as he took a hand . . . well, all we have to do is leave it to him. The harder he tries to block the canals, the harder the Mules will work to frustrate him. He must be pretty frantic by this time."

" But won't he guess in the end ?" Brandon asked.

" I don't think so. I took the governor into my confidence, and he's told Lawrence to keep working on his sail-craft, that he'll get a big order if the canals fail. He'll keep at it, all right."

Howard stubbed out his cigarette.

" And now he's too busy to build any of his machines, so we have it all our own way !"

" Damn cunning," Brandon said. " If you ask me, you'll be the next governor !"

Sydney J. Bounds

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Readers who enjoyed Kenneth Bulmer's serial "Green Destiny," published early in 1957, will remember the wealth of undersea detail he put into his story. In the following article Kenneth Johns points up the scientific side of the vast resources awaiting Man's development of the seas which surround us.

THE CHALLENGE OF THE SEA

By Kenneth Johns

Tell a tale of unknown continents beneath the sea, of mermaidens and caverns measureless to asdic, and you fire the imaginations of men.

Mention the sea as a new source of food and energy and raw materials and people look bored. Contrast the relationship of the sea to the Malthusian theory—that increase in human population *must* overtake production of raw materials—and you will get a blank stare and a change of subject. Persist, and point out that the seas constitute our only untapped, remaining resource, that they cover seventy percent of the Earth's surface and are the sole hope of mankind to come—and someone will turn on the TV set and wash away in present entertainment the unwanted worries of tomorrow.

Yet the youngsters watching that same TV will be the men and women who will be up against these very problems.

So it is that men of foresight are already looking to the seas for the answer to tomorrow's headaches. From our egocentric

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land-dwellers' point of view we think of the Earth as a series of land masses with a little water separating them, a nuisance to be bridged by ships, aeroplanes and radio. A far truer picture of the Earth is a water-covered globe, with a few pieces of sea-bottom thrust up in the form of continents.

By the sea we live ; without the sea we die.

With no oceans to ameliorate the climate, Earth would be an intolerable dusty surface ranging from the parched and baked Sahara-like tropics to the iron-hard bitterness of the poles. Without oceans, there could be no life as we know it, for life came from the seas. Without water, the surface would be a tortured mass of mountains and plateaux, sharp and unweathered, lunar-like, dead. Without water, the atmosphere would contain no oxygen and lie as a choking blanket of carbon dioxide and nitrogen. These are self obvious truths ; so obvious that they are ignored except by the scientist who figures them into his calculations in planning what to do about tomorrow's problems.

The seas of Earth hold 300 million cubic miles of water, each cubic mile weighing 5,000 million tons. This is a lot of water—but it has a lot to do. It acts as a reservoir of solar energy distributing heat fairly evenly over the globe, cooling the tropics and warming the so-called temperate zones. It sculptures the island continents, lays down their mineral beds, segregates minerals and keeps most of the soluble salts locked in its deeps. The oceans control the carbon dioxide content of the atmosphere within narrow limits ; if there is too much in the air the excess dissolves in the seas, too little, and the seas breathe it out again, to provide raw material for photo-synthesis—and thus for all life.

Combined with know-how—the modern term for knowledge —food, energy and raw materials have built our civilisation up from savagery to spaceship design on an exponential curve. If the graph of Man's progress could be made to continue in its present form, we would be colonizing extra-solar systems in a hundred years. In a thousand we would be standing on the rim of the Galaxy, looking outwards.

If any one of three basics—food, energy and raw materials—fails or cannot be expanded to meet Man's growing needs, then civilisation atrophies. Two hundred generations ago we were beginning the upward climb ; will another two hundred generations see the human race still climbing, or will it have

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sunk into the despair of planet-prisoned life eking out its resources as carefully as its permission to procreate?

Not so long ago, a quick calculation could show that Earth's fossil fuels—coal and oil—would be exhausted by the end of this century. Then atomic energy pushed the possibility of exhaustion into the future by a couple of centuries; although the amount of radio-active fission products that would have to be dumped hazarded the genetic future of terrestrial life. Even then, scientists were thinking of the seas as a uranium mine on a lavish scale; each cubic mile of seawater contains seven tons of uranium.

Recent IGY research into the circulation of water in the oceans from top to bottom leads to the conclusion that waste materials deposited at any depth are, eventually, bound to come to the surface. This vertical movement of the oceans is a slow process. It may take from 250 to 1,000 years for mineral nutrients from the floor to reach the surface and for drifting surface plants to reach the lower strata. Radio-activity is the key by which we can read the story of the lower depths; the ratio of the three isotopes of carbon, as they vary because of the decay of the radio-active type, tell us how long it has been since that water was at the surface.

From fission, scientists are going on to fusion. Nice, clean helium as the main by-product, the possibility of direct conversion of fusion energy into electricity—these are attractive rewards; but above all that promises good is the reasonably cheap and practically inexhaustible supply of deuterium, the second heaviest isotype of hydrogen.

And so, the scientists were back again to the seas for their source of energy. Small though the amount of deuterium in seawater is, each gallon of seawater could free as much energy as is obtained by burning five gallons of petrol. By the time this supply of deuterium has run out, mankind should be quite capable of the direct conversion of any and all mass into energy. $E=MC^2$ will be just as useful in tomorrow's research as it is in today's.

Yet, even without going to thermonuclear fusion for energy, we could provide a great part of our energy needs from the ceaseless tides of the oceans—if economic necessity made it imperative.

The *total* tidal power of the Earth, even if it was harnessed at thirteen percent efficiency, would generate as much energy as is at present being used by the whole of the human race. There

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have been many ambitious schemes to utilise tidal power ; but it appears that at only a few places can it be conveniently harnessed.

The French have a plan to use tidal power to drive turbines at St. Malo, on the Brittany coast. Using the small River Rance as their reservoir, it would produce 342 megawatts. If they built a dam to enclose the nearby 300 square mile St. Michel Bay, this could be expanded to 10,000 megawatts.

Naturally enough, this energy comes from somewhere and its removal would show up as a slowing of the Earth's spin. Braking of the tides would act as a brake on the Earth, increasing the length of the day. This—solar system planners note—is a convenient method of altering the period of a planet's rotation. However, the Earth is relatively large, and the loss of a million megawatts would only result in the loss of one day in every 2,000 years. Perhaps only astronomers would quibble at this price.

There have also been plans to harness the temperature difference between the warm upper and the cold lower parts of the ocean. This represents a vast reservoir of low grade energy more suitable for purification of seawater than the production of energy. Successful experiments have been carried out ; but they broke down in the failure of the equipment.

There are 100,000 new humans to feed each day ; 100,000 new mouths demanding their share of fats, proteins, carbohydrates and vitamins. Food synthesis is not yet possible, so in order to keep pace with this ever increasing demand more and more of the Earth's surface must be employed and the existing areas utilised more efficiently. And in the seas we have the greatest untilled acreage.

Certain parts of the seas have yielded food since time immemorial ; but Man is so conservative and so unthinking of the future that he is practically wiping out his fish crops. The North Sea affords an illuminating example. Up until 1950 it fed the greater part of Britain and Europe with herrings. From 1950 onwards there was a catastrophic decline in the number of herring caught, and the sole cause was the deliberate fishing for small herrings to convert into oil and fish meal for the feeding of cattle. Such are the size and efficiency of modern fishing fleets that the whole of a specie of fish can be obliterated from any sea.

Apart from our own peculation, nature also sometimes turns and destroys lucrative fishing. The herring fishing industry

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was ruined in the English Channel in the 1930's by a complex climatic-hydrographic alteration. A river of cold water spills over an underwater mountain range from the Arctic into the Atlantic. Slightly warmer winters during the last twenty years have resulted in this flow being less than normal. Previously, this cold underwater river flowed not as a steady stream but as a series of giant balls of dense, cold water. As they flowed over the rough sea bottom they altered shape to accomodate to the bottom ruggedness and they created a series of internal waves deep down in the ocean. Traversing the deeps, the waves carried on unhindered until they 'broke' on the continental shelf. There, their energy was spent in mixing the lower waters, rich in mineral nutrients for plants, with the water at a depth of about 1,000 feet. Wind, tides and surface waves did the rest, bringing the nutrients to the surface where algae bred freely and were eaten by zooplankton who, in turn, formed the food of herrings.

When a series of mild Arctic winters occur, the end result is no herrings in the English Channel. Simple—yet it took 20 years to trace this chain back to the Arctic.

Yet, if Man turned to some of the more unusual seafoods, there could be no possibility of over-fishing.

Whales are the sea food nearest to animal meat ; but there is no popular demand for whale steaks again. Perhaps this is just as well, for whales are heading for extinction. Now scientists are looking to the food of whales, considering if it would be more useful if that were harvested direct for human consumption. The principal food of the baleen whale is krill, a shrimp-like creature growing to about 2½ inches in length. Usually living close to the surface, the krill in its whale-food stage is rich in Vitamin A, protein and fats, and the great shoals, followed seasonally by the whales, should be easy enough to harvest.

Before the era of industrial whaling there were something like half a million whales eating 270 million tons of krill a year. It has been estimated that 1,350 million tons of krill a year grow in 3½ million square miles of Antarctic water. Thus, giving an acreage yield half as much again as cattle growing on the richest grazing, krill could feed 200 million people and make the largest addition to our food resources since the opening up of Australasia.

If whales are harried to near extinction, the whalers may have to turn to krill fishing. The highly organised whaling

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industry may, from excitingly hunting the largest creatures on Earth, begin to send our their fleets shrimping.

The food cycle of the sea is so vast that it can provide millions of tons of raw materials. Three quarters of a million tons of seaweed are already harvested each year and uncounted millions more are available if needed. Instead of cellulose, seaweeds use alginic acid to build their cells. Instead of starch, they contain lamarin.

Already you are eating seaweed in the form of sausage skins and as a replacement for gelatine in jams and meat pies. Alginic acid makes rubber, plastic films and surgical guaze. You will also find it in cosmetics and preparations for water proofing cement and some synthetic fibres.

It is slowly becoming economically feasible to extract minerals directly from the sea. Bromine for anti-knock compounds has been extracted since 1933, and the enormous demand for magnesium alloys brought about by the war was met only by using the 4 million tons of magnesium found in each cubic mile of seawater. Salt has long been taken from seawater but only recently has it been possible to tap the 2 million tons of potassium in each cubic mile, a material that would be of great usefulness as a fertiliser if it could be extracted cheaply. Scientists have even been casting envious glances at the 1 ounce of gold and one fifth of an ounce of radium per cubic mile but attempts to extract it cost more than the finished product.

One of the trickiest operations is the economic recovery of pure water from seawater. Straight-forward distillation uses 2.8 kilowatts per gallon—only by complex units such as multi-stage evaporators is it possible to reduce this figure, and then troubles crop up with scale formation in the boilers.

Flash evaporation of part of warm sea water could utilize the difference in temperature between the surface and the bottom, solar energy stills are mainly in their infancy, whilst ion exchange membranes, in which electrolysis pulls the charged atoms of salt through sheets, can only economically be used with brackish water.

Freezing can be used to help purify water, and a pressure of 350 pounds per square inch will force water through a semi-permeable membrane whilst not allowing the salt through. Much more work is needed on all these methods, for already some countries are seeking about for new supplies of fresh water. The U.S.A. is using 14 percent of its total rainfall for irrigation, factories and cities, and much of the remaining water is not where it is needed most.

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Already science fiction's prophecies are coming true in the flowering of the space age and it is only a matter of time before its forecasts for underwater farms, herding of whales and deep-sea mining bear fruit in reality.

Speculation as to the use of sea minerals even includes one suggestion—not in the field of science fiction but of sober thought for tomorrow's problems—that we build sea-robots capable of reproducing themselves. If we constructed a ship-like machine capable of extracting minerals from the sea, purifying them, maching and fabricating them into a duplicate of itself, we would not have to worry about mineral resources. One such unit, powered by solar batteries and reproducing itself each year, would produce a fleet of 1,000 million in 30 years.

If, instead of reproducing *ad infinitum*, an inbuilt urge sent two or three year old units sailing back to harbour with a load of metals, all that men would have to do would be to unload the cargo and break up the robot for its scrap value.

It would pay to spend a few hundred millions on such a far-seeing project if it was possible for the robot to carry enough chemical plant foundries, factories and ship-building equipment really to copy itself down to the last valve and rivet. Instead of completely duplicating herself, the mother ship might simply extract valuable minerals and load them into on-the-spot fabricated ships which were radio-directed to any port where her supplies could be handled. When the large ships wore out, they could be replaced by human hands.

Life came up out of the sea and adapted itself for existence on the land. This it has done so well that it is now marooncd. Before the overflowing millions of people suffocate on the dessicated dust bowls of the scattered land masses, the sea must again come full circle into every life. This is the great scientific, technological and intellectual challenge of the next hundred years.

Alas ! There have been many ambitious schemes to harness the sea, but few have been succesful.

From now on, however, failure of our scheming means failure for the human race as a member of the intelligences inhabiting this Galaxy.

Kenneth Johns

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Calvin Knox appears in New Worlds for the first time this month, but he has a series of short novels running in our contemporary Science Fiction Adventures *(the "Chalice" series) which have just been published in USA in book form. "Slice Of Life" is a gem of a story dealing with psychology and psychiatry.*

SLICE OF LIFE

By Calvin M. Knox

Danny's World was one of shapes and colours—of swirling red lights and glittering blue clouds, of misty hills and fog-bound seas. It was a warm and comforting place, quite unlike the less friendly world beyond his bedroom.

He was lying in bed with the counterpane tucked tightly around his scrawny eleven-year-old body, lying back with his head nestling pleasantly in the sweet-smelling foam of the pillow. Somewhere in the shadows at the far end of the room, a radio was playing soft music. Danny's mother left the radio on almost constantly, thinking the music would soothe Danny, would calm him and keep his mind from dwelling on the accident that had crippled him and robbed him of his birth-right.

Danny needed no soothing, though. He never heard the music—not *that* music, anyway.

There was another music, an unheard music that sang softly through the arching cliffs and cloud-washed valleys of Danny's *other* world. It was the song Hammel the Drinker sang, Hammel of the bright eyes and lusty arms.

Danny listened raptly to Hammel as he sang of the Mountains of Eyorn and the seven golden sisters who guarded the Lair of Many Lions far to the east. Some day, Hammel promised, Danny would see the Lair. Some day—

From outside the bedroom came the coarse sounds of voices. Danny wrinkled his nose in annoyance. Mother had said there would be a man to see him, just to talk to him and be nice to him.

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Reluctantly, Danny drew his conscious mind away from Hammel, and waited for the horrid moment when the door would open and one of *them* would step in.

" We're glad you're here," Selma Raab said. She was sending *warmth, friendship, hope.* Especially *hope*, David Onslow noted.

He took her hand, pressed it tight. From the staircase behind him came a flow of new impressions : *suspicion, doubt*, succeeded by *hope hope hope.* Onslow glanced back and saw the blocky figure of Leonard Raab appear.

They were good people, Onslow thought immediately. They were sincerely unhappy about their son—as who wouldn't be ? —and they would be as co-operative as they could be with Onslow. He radiated *strength* and *kindliness* on the highest level, and knew from the expressions on the Raab's faces that the deeper levels of his mind must be beaming the same hopeful message. He was certain he could cure Danny, and he wanted the Raabs to know that at once.

" Won't you sit down ?" Mrs. Raab said graciously. She was about thirty-five, still pretty, though the tragedy that had struck her son had left its mark on her, in the crosshatched veining beneath her eyes and in the too-sharp curves of her cheekbones.

Onslow took a seat in one corner and made himself comfortable. " Your apartment is a very congenial one," he said, smiling. " I feel right at home already."

" We're glad to hear that," Selma Raab said graciously. " We've tried to give Danny the finest home life—to make up for—to—to—"

Her voice trickled away into helpless wordlessness. She was radiating *despair, agony, sense of injustice.*

" I know what you mean," Onslow said gently. He looked around. The home was furnished in period style—Early Twentieth Century, apparently, with traditional non-functional fireplace, warm wall-colours, pleasantly undecorative furniture. Above the fireplace hung a large but blotchy reproduction of Da Vinci's *Mona Lisa*, with an ornate and somewhat ridiculous frame. Onslow let his eyes rest on the painting for a moment, playing an old game : he was wishing that paintings could somehow telepath their emotions the way people did, so at last the ambiguities of the Gioconda's smile would be solved.

Then he leaned forward in the chair and surveyed the anxious faces of the two people staring at him. " Before I meet

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Danny," he said, " I want to know all the facts." He made sure he was sending a feeling of *crisp efficiency*, thankful for the slight edge in psi ability that enabled him to control, to some extent, the tone of the emotions he was broadcasting. It was an immeasurable help, in his profession.

" We went through them at our interview yesterday, didn't we ?" Leonard Raab said. " I thought you knew the rough outlines of the case."

" I do," Onslow said. " But in this kind of work, we have to be *sure*. Let me see, now : you say Danny was perfectly normal up to the age of—eight, was it ?"

" That's right," Raab said. " He was a handsome, lively little fellow—he's still handsome, of course, but the life seems to have gone out of him since the accident."

" He had all his normal faculties ?" Onslow persisted.

" Yes," Raab said. " Of course, it's hard to tell in a child, but we knew he was sending, and he was picking us up too. He was a real part of our family unit—until the accident," he concluded sadly.

" Until the accident," Onslow said. He nodded. " Now, at the age of eight, he fell from a fourth-story window ?"

" Fifth story," both parents corrected instantly.

" We were in another room," said Selma Raab. " He was still sending. We picked up *apprehension*, then a sort of *terror*, and then he fell—before we could get into the room. After that—silence. He hasn't sent since."

" Contact was broken the second he hit the ground," Leonard Raab said. " It must have been the pain, the fear, everything else."

Onslow nodded sympathetically. He was pleased that the Raabs had adjusted so well in the past few minutes ; since he had got them started talking on the subject that so clouded their life, a catharsis had been effected and their radiations of *despair* had ceased. It was a minor success, but it counted. A therapist always strove for such small victories.

" How about the boy's physical condition ?" Onslow asked.

" The bones of the left leg were splintered pretty badly. He's never walked since. When he's full-grown, we'll probably have the leg amputated and a prosthetic fitted. But that's not the problem," Leonard Raab said.

" I know. It's the lack of rapport you're worried about. And that's why I'm here." He sent *self-assurance*, *skill*, above all *empathy*. That was the key. *Empathy*.

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" Is the boy awake now ?" Onslow asked.

" It's hard to tell," said Selma Raab. " He lies there so dreamily, listening to the music we play for him, that we can't tell if he's asleep or awake."

" I'll go in anyway," Onslow said. " I'll get him up gently if he's asleep. And then—then we can begin the therapy."

Excitement, anticipation, hope hope hope.

" What should we do, Dr. Onslow ?" Raab asked.

" Just be patient. And under no conditions enter Danny's room while he's in therapy. Read books ; do something. I'll be out in exactly an hour."

They nodded solemnly. Onslow picked up *wish to co-operate.*

He turned and tiptoed across the thick green broadloom carpet to the closed door of Danny's bedroom. Slowly, without any jerky motions, he nudged the door open and stepped inside.

A flood of unaccustomed pity washed over him at the sight of the poor, pale, incomplete boy huddled in the bed, crippled in body, and, more disastrously, in mind. Onslow was deeply moved at the sight.

Danny was thin, with fair, almost transparent skin and dirty-blonde, curly hair. He would have been a good looking boy—but there was no life in his face. It was hardly surprising; he was really only partly alive, cut off as he was both from the physical world and from the larger deeper world of the mind. He was aware of only the barest slice of the spectrum of life. It was a case Onslow had been proud to tackle ; it meant actually restoring a human being to full life, a rewarding task for the therapist.

" Hello, Danny," he said, shading his voice delicately to communicate friendliness. There was no sense in depending on mental emanations to build up a relationship with Danny.

" Hello," the boy said sullenly, without looking up.

" My name is Dr. Onslow." The therapist took a seat at the edge of the bed. He saw a furtive scurrying under the quilt, as Danny pulled his body away to the far end of the bed. " Don't be afraid of me, Danny. Let's be friends shall we ?"

Onslow reached into his pocket and came out with a shiny miniature gyroscope. He let the toy whirl for a moment in front of Danny's eyes, then grinned and pushed it toward him. " This is for you, Danny. It's a present."

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The boy flicked his pale blue eyes scornfully at the rotating wheel. " I don't want it."

" All right," Onslow said cheerfully. With a swift motion of his hand he scooped up the gyro and dropped it back into his pocket. Danny registered not the slightest sign of interest or disappointment.

" Don't like gyroscopes, eh ?"

No response.

Onslow frowned slightly and began a new method of attack. " How old are you, Danny ?"

" Eight."

The therapist blinked in surprise. *Eight* ? But he was eleven. This was a manifestation the Raabs hadn't warned him of ; was Danny stuck for ever at the age at which he'd had his accident ? That would make the task of achieving rapport with the boy's mind infinitely more difficult.

" Did you say *eight*, Danny ?"

" I meant eleven," the boy said tiredly, obviously not caring. " I think. I had a birthday last month. It was a Monday."

Onslow felt relief. There was *some* temporal confusion—his eleventh birthday had actually fallen three months earlier—but that sort of confusion was only to be expected of a permanent shut-in with no contact with the outside reality.

" That's better," Onslow said. " Did you enjoy your birthday party ?"

" No."

The therapist fell silent, stumped again, and felt a growing uncertainty within himself. Danny needed help—but how ? How to break through that wall of bitterness ?

He didn't know. But he was confident that the answer would come.

Onslow stole a glance at his watch. Ten-forty ; the session was more than half over, and he was nowhere. Danny was tighter than a clam.

Could the boy be completely hollow ? It seemed unlikely ; the parents were cultured, intelligent people who would have made some attempt to continue the crippled boy's intellectual development even after the psi faculty had been blocked.

That was not the answer. But all of Onslow's carefully-planned probes had failed to open the boy up. And his mind was silent—terribly silent.

It bothered him. There were plenty of cases of incomplete mental communication—more than enough to keep Onslow

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busy—but in his twenty years of practice as a psychic therapist, he had never encountered a case where a physical shock had caused a psychic block of this magnitude.

Danny didn't like toys, he didn't like pets, he didn't like music. He didn't like reading, he didn't like singing, and most of all he didn't like Onslow. That was painfully obvious.

What *did* he like? It was going to be a struggle to find out.

Onslow moistened his lips and looked down at the too-small figure in bed. Danny's attention, which had never been too strongly focussed on Onslow anyway, was wavering, and a somnolent shadow seemed to be passing over the boy's eyes.

"Let me tell you a story," Onslow said. His voice, naturally deep and rich, dropped nearly an octave, becoming a supple dark vehicle for his words.

Danny made no response, so Onslow began. "Once upon a time, there was a little girl named Alice, who went to stay in the country."

He paused for a fraction of a second and stared at Danny. The boy's eyes faced the ceiling; he was totally uninterested.

Undaunted, Onslow plunged on. "One morning, Alice was sitting in a field, plucking daises, when a white rabbit dashed by her. It ran right past her and disappeared down a hole in the ground. What do you think Alice did when she saw that?"

"I don't care," Danny said tonelessly.

"Alice ran right after the rabbit," Onslow said, deliberately ignoring the boy's reply. "She dropped down the rabbit-hole, falling all the way to the bottom. It was dark and warm, and when she landed it didn't hurt her a bit."

Good symbolism, Onslow told himself approvingly. *If he'll transfer to Alice and convince himself that it doesn't hurt to fall from a height . . .*

"She picked herself up and found herself in a strange and wonderful world—a world named Wonderland, ten times more wonderful than the world we live in. In fact, it was the most wonderful world possible."

A sudden flicker of animation crossed Danny's face. "Was not," he blurted. "Not true."

"Why, what do you mean?"

"Not true, that's all."

"*What* isn't true, Danny?"

The boy's lips puckered impatiently and he said, "The Valley's the most wonderful world."

"The Valley? Where's the Valley, Danny?" Onslow asked,

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hiding the torrent of excitement that coursed suddenly through him. " What Valley ?"

" *The* Valley, silly !" Danny said hotly. And abruptly he came to life.

Guardedly, Onslow said, " Tell me about the Valley, then." He peeked at his watch, with that imperceptible gesture he performed so well. Ten minutes left to the session.

" The Valley's where I live," said Danny quietly. " Down by the stream of blue water that runs by my house. I swim there. I was swimming there this morning, before Hammel the Drinker came by and sang to me."

Onslow felt the thrill of breakthrough, and knew now that he was on his way to success. He listened, enthralled, as Danny poured out an account of his world.

"—the blue-clouds up above, that turn the sun green when they pass in front of it, and off in a corner of the Valley the Wigglies live. They have long ears and whistly noses and they don't like the water."

Danny seemed transfigured. His eyes were closed, his face appeared to be shining. " Hammel comes to me every morning and sings to me about the far-off places he's been to. He's big —lots bigger than my father, and some day he's going to go around the world with me, to the places at the other end near the edge. He's been there once, but he says he'll take me too."

When the hands of his watch told him that the hour was up, Onslow gently touched the boy's forearm. The physical contact immediately snapped him out of his near trance, and he looked up, startled.

" I have to go now, Danny," Onslow said. " But I'll be back tomorrow—and maybe I'll get to meet Hammel the Drinker then, too. I'd like to."

Danny's face showed conflicting feelings—as if he were angry with himself for having revealed his inner world so willingly to Onslow, and yet pleased that he had been able to communicate it. " He won't be here tomorrow. Not while *you're* here, anyway."

" Maybe he'll come," Onslow said. He squeezed Danny's arm fondly, turned and walked away, pausing at the door to smile warmly at the boy in the bed.

The Raabs were sitting precisely where he'd left them an hour before. A sudden radiation of *anxiety* hit him as he stepped into the living room and he countered with *accomplishment.*

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"Well Doctor?"

"I think I've made some headway," Onslow told them. "It took time. Tell me—does he talk much to you?"

"Hardly ever," Selma Raab said. "He's always—dreaming."

"Exactly. He seems to have built up some sort of fantasy-world. I think that'll be my entrance to his mind."

"What do you mean?" Leonard Raab asked.

"It's a sort of perpetual running daydream," Onslow said. "I think if I can manage to enter it, to live in it with him, I can set up the sort of rapport that'll restore his psi ability."

"Really, doctor?"

"I hope so," Onslow said. "It'll take time—but I think I can do it."

They were sending *happiness*, pure and simple.

Once the gulf had been bridged the first time, further contact presented little difficulty. By the third session, Onslow had worked his way completely into the boy's confidence, and he was starting to be able to feel his way around the strange world inside Danny's mind.

"The Wigglies had some trouble this morning," Danny reported. "They were on Orange Mountain, and a sky-thing swooped down and bothered them."

"I hope Hammel chased it away," Onslow said apprehensively. "The Wigglies aren't very good fighters."

"Hammel was away hunting," Danny said. "But I ran up there and made the sky-thing go away. The Wigglies were happy. Later I went to Needle Hill and brought down the purple moon."

"It needed polishing, didn't it?" Onslow asked.

"It was all dusty. I cleaned it and let it float back. The sky looks better when the purple moon's polished."

Onslow leaned back in his chair—he no longer sat on the edge of the bed, since it was something Danny didn't like him to do.

Danny's world was coming clearer and clearer to him. It was flat, with edges off which one could fall. It was a colourful world, with a purple moon and green one, orange mountains and a perpetual rainbow overhead. It was a world of bizarre creatures and daring adventures, of heroes and demons, at whose centre stood Danny Raab—*on two sturdy legs.*

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It was, thought Onslow, quite a lovely place—the product of a mind cut off from the normal world, forced inward on itself. And, apparently, the product of a mind of great imaginative intensity. He watched the boy in the bed with growing respect. Each new detail, each further adventure, each more detailed bit of embroidery, left Onslow more and more in awe at the creative fertility of Danny's mind.

The days passed—two, three, then a week. Onslow found himself looking forward to his morning consultation with Danny as almost a sort of self-therapy ; as he drew closer to Danny's fantasy-world, he realized that he was undergoing an experience of great beauty himself. Hammel the Drinker ; bold Lemas of Onvernoire whose silver hatchet wreaked a terrible destruction among the living trees of Immersenny ; frightful Dvorkal of Dvorkalo, the bearded, molefaced witch who flew on a chariot drawn by green spiders—these were people Danny was able to communicate vividly to his new-found friend.

" How's progress ?" Leonard Raab inquired conversationally, as Onslow showed up on the ninth morning.

" Wonderful. I've filled a tome full of notes on your boy. And I think I'm reaching the stage where I'll be able to enter his mind and the psychic block."

Powerful waves of gratitude swept toward him. Onslow knew just how important it would be to have Danny restored to the Raabs in full rapport once again. Their only child—an unusual thing in itself these days, but under the circumstances who could blame them ?—and they were denied that family *oneness* that the emerging psychic powers granted.

Onslow knew how the cure could be effected. It was a matter of participation in Danny's world until he, too, seemed to be part of it. He had the characterization all worked out—Onslow, the Thinker, a giant brain and nothing else, living in a fungus-tapistried castle on the deserted, wave-swept beaches of the silent north. He had started planting hints the day before. Once he entered the Valley, it would be simple for a man of Onslow's skilled perceptive powers to explore Danny's frozen mind and break whatever trauma it was that blocked his psi.

He pushed open the door, and Danny's eyes glowed. " Hammel was just here," he said brightly.

" Too bad I missed him," Onslow said. " I wanted to warn him against the Scroobly Men from the South Ocean."

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" Oh he knows all about them. Don't worry about Hammel. But he just told me the most wonderful thing !"

" Oh ?" Onslow asked, taking his usual seat.

The enthusiasm on Danny's face was a heartwarming thing. " Hammel said he had just received word from Lemas of Onvernoire that when the purple moon shines tonight, showers of diamonds will fall from the sky ! And—"

Onslow sat patiently, listening as Danny poured out an involved tale of intrigue and counter-intrigue in the gloomy castles that surrounded the upper end of the Valley. The boy was a natural story-teller, Onslow thought, for at least the fiftieth time. His inner world was so real to him that it was the simplest thing for him to make it just as real to any sympathetic listener in a matter of moments. He was completely un-selfconscious, completely absorbed in the telling of his tale.

There came a point for Onslow when reality and Danny's world blended dizzily and Onslow knew he had achieved complete participation. The Valley was now as real to him as Alice's Wonderland or Elsinore Castle or, for that matter, the park across the street. In the same moment came a new, troubling realization that Onslow pushed hastily, half-thought, away. He returned to his task.

From time to time in the minutes that followed, Onslow entered the stream of narrative, carefully guiding Danny's mind toward the entrance of Onslo the Thinker somewhere near the midpoint of the session.

Then it would be simple. He visualized it clearly—the logical, inevitable way in which Onslo the Thinker and psychic therapist David Onslow would become one, and David Onslow would enter Danny's mind. A few moments for reconnoitering, and then the moment of locking, the instant of rapport that would unleash the psi that had lain dormant for three years. Three years in which Danny lay dreaming, conscious only of the merest segment of external reality.

Then—then, the awakening of Danny's mind, the joy of his parents, the happy smile on the face of the cured boy—a great victory for therapy—

Don't do it.

The thought that he had repressed all mornings jarred painfully into Onslow's consciousness, and everything he had been building tumbled suddenly to pieces. For a moment, only the compartment of his mind that was listening to Danny's narra-

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tive remained fully functioning, while the rest of David Onslow underwent torment of a sort he had never experienced in his life before.

He could cure Danny. He knew that.

But when he did, the Valley would disappear, forever.

He let the hour come to its conclusion without attempting to control the flow of conversation in any way, made his usual farewell to Danny, and stepped uncertainly into the hallway.

He paused there, struggling to evaluate the thing that had happened to him.

Danny's world had become part of his own. Danny was an artist—a great creative artist, immature though he was. Somehow his poor sick tortured mind had dug into its own resources and had spun a delicate fabric of rare delight.

Why did this happen, Onslow asked himself, as he stood alone in the hall. And why was such story-telling vanishing from the world? Why? Why?

People were sane, that was why. They were healthy, well-adjusted, in psychic rapport with each other, perfectly secure, perfectly convinced—and rightly so—that theirs was the best of all possible worlds.

Not Danny. What little Danny could see of his own world was clouded by pain and uncertainty. So he created a new one.

Who were the great artists? Beethoven—too deaf to hear his own music. Mozart—a sickly pauper, dead at 35. Leonardo, Shakespeare—sexual deviates by modern standards. Van Gogh—a confused, unhappy madman. They wove great art from the torment of their souls. No one had adjusted them. Torment was the wellspring of creation. Some fundamental disharmony was present in the minds of great creators—well hidden in some, nakedly apparent in others.

And Danny? Danny was in that company. Curing him would make him "happy," certainly—but would it ever allow him the deep satisfaction beyond happiness that the artist feels? Not at all, Onslow thought. Not at all.

He walked into the living room, conscious of his ashen face.

"Well, how are we going?" Mrs. Raab asked—and then, as she picked up Onslow's radiations, her face changed. "Something wrong?"

"Yes," Onslow said slowly. "I attempted the final entry to-day. I couldn't achieve it. It won't work." He hoped the

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Raab's perceptions were sufficiently blunt so that they would not notice the half truths he spoke.

"What do you mean?" Mrs. Raab asked hurriedly. "Won't Danny be able to—"

"Danny can't be cured," Onslow said. "The block is *not* psychically induced; it's physical, something that happened when he fell."

That was an outright lie, but they didn't seem to notice. Onslow's hands felt cold; he put them in his pockets and shifted his weight uneasily from side to side.

Their faces were bleak. Mrs. Raab was close to tears—though she was far too healthy-minded actually to cry. Leonard Raab stared stolidly ahead. Onslow detected an undercurrent of repressed suspicion coming from them; his mind was sharper than theirs, but they knew something was wrong.

But was it? Was he breaking his oath? When is a cure not a cure? He had sworn to bring the greatest possible fulfillment to his patients—not necessarily to cure them, if curing them did more harm than no cure at all.

There were enough sane men in the world, Onslow thought. Just one less wouldn't matter. Just one. He would leave Danny alone. When he grew up, he would pour out his bitterness, his aloneness, in imaginative works that would astound and delight the world.

The Raabs were looking at Onslow strangely, and he struggled to pull himself together. "This will terminate our consultations, of course," he said. "But I want to assure you of one thing—Danny may be an unhappy little boy, but he'll be a great man some day."

They looked at him in total astonishment, but Onslow knew that they were picking up waves of such passionate sincerity from him that they would not doubt his diagnosis. They would trust him and Danny would grow up some day.

"I'll have to leave now," he said hoarsely. He zipped his jacket with trembling fingers. Some doubt still remained in his mind.

The next Beethoven—the next Leonardo—or a well-adjusted little boy? *Which is more desirable*, he asked himself, *on an absolute scale? Do I have any right to do what I'm doing?*

His eye wandered up and caught the Gioconda above the fireplace. She seemed to be smiling in approval.

Calvin M. Knox

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An earlier story of the Earth-Shurilala-Takkat war was "The Unreluctant Tread" in this year's February issue. The following story, complete in itself, deals with entirely different characters, depicting another facet of the vast galactic background such a war would encompass.

SPACE COMMAND

By Kenneth Bulmer

How the dog came aboard TSS *Hesperus* no-one knows. She was a soulful-eyed, swing-eared orange-red collie and afterwards Fairlee never loved an animal so much in his life even though on the only occasion he met her she tripped him headlong down an engineroom hatch and broke three of his ribs and both of his legs.

David Fairlee didn't know until later that the dog had saved his life.

That was when news broke over Luna Base that TSS *Hesperus* had been picked up off Neptune by a suspicious scout cruiser. They hadn't liked the outsize blip she made on their screens. And they'd boarded her on an orbit that would have taken her slap into old Sol.

She was manned by a crew of corpses.

No-one knew where the dog went, either.

David Fairlee, lying hot and cross and dangerously ill in his hospital bed, when he heard the news wanted her to be found

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so he could kiss her wet nose. You see, the meaning of what had happened aboard his ship hadn't penetrated yet. He was still shocked from the accident with the dog, and wasn't himself. He's too well known now for anyone to believe that in any disaster he would think of himself first. But this was all a long time ago, when Fairlee was still only a midshipman, and the *Hesperus* his first ship. But even then he was marked as a man destined for great things in space.

Like any other spacefarer, he loved his ships ; but now he had to face up to the fact that *Hesperus* was a killer.

She was a battlecruiser, the last of a long line of fighting ships ; the type came to an end when the Jorgenson hyperdrive gave superlight speed to all weights of shipping. But she, along with a number of others of her class, had been fitted with the Dorein AstroNav Drive, which was a brilliant idea of the new generation of scientists. They'd tied in the astrogation with the drive by using speculative maths centred on the theory that speed and not time was the fourth dimension. What this meant to the Navy was that the Engineering branch and the astrogation branch amalgamated—it was hailed as a tremendous step forward, a triumph of ingenuity and economy. David Fairlee was just a middy ; but he knew *Hesperus's* engines and astrogation because the two were linked.

When *Hotspur* and *Hardy*, within a week, were found drifting with dead crews, the Admiralty called in all ships equipped with the Dorein AstroNav Drive. The Terran space Navy was thrown into chaos. If some of the aliens we met up with later on out in deep space had been sniffing around the Solar System at that time the consequences would have been—well, wouldn't have been worth discussing, for no-one of Terrestrial origin would have been around to worry.

As it was, the boffins found out what the trouble was—a minor matter of hitherto unknown and unsuspected radiation. When a man had been dosed to a certain level through continuous exposure to the DAND engines he died. How he died wasn't exactly known ; but the crews who'd cleaned up the death ships had been off duty with the jumping twitches for a clear fortnight afterwards.

No amount of shielding stopped these murderous rays ; they were allied to neutrinos, which can punch through fifty light years of solid lead—if you can imagine anything on that scale —and the boffins gave up before they'd absorbed a killing dosage.

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Their work did give a maximum dosage figure, and computed with the known facts on the ships that had killed their crews, the Admiralty felt justified in operating these ships until the new Jorgensen battlewagons rolled from the yards. Then all DAND engines were ripped out of those ships on Earth, and those on the outer star systems were quietly placed in Reserve, mothballed and forgotten.

As I said, this was all a long time ago. I'm Harold Crespigny, by the way, civilian, historian attached to the ninth Fleet. It's an interesting sort of job ; but the gimmick that gives me the biggest kick is that after being turned down by a Space Navy Medical Board as being unfit to serve in space, as a civilian I'm allowed to flit about among the stars on any warship I choose. Rum do—but then, that's what life is, I suppose.

I first met David Fairlee—Admiral Fairlee as he had by then become—just before the close of the first TEST war. That was the futile imbroglio lasting about twenty years between the three young space empires, the mess we called the Triple Earth-Shurilala-Takkat War. I don't think I've ever seen a man more obviously on fire. He was a small man and the suffering spirit of him shone through his eyes—in a quite physiologically impossible way — as though he was always stretched upon a white-hot rack of his own desires and beliefs. Something was crushing his personality ; some unfulfilled desire was tearing him apart.

When I discovered that he was a Rear Admiral, and that he had never held a space going flag—had never commanded his own flagship and led his own squadron—I knew the reason for that suppressed bitterness, that ever-nervy quickness to express himself in a humorous self-deprecatory way that could fool only the greenest tube-monkey. Knowing the Navy as I do, I could sympathise with him. When I got to know Dave Fairlee better, that sympathy turned to pity.

He was tough, efficient, imaginative in the controlled spaceman's way, thorough Navy through and through. And yet My Lords of the Admiralty had never seen fit to request and require him to hoist his flag aboard his flagship and at last fulfill the reason for his being.

It was as though a lad had spent the best years of his life practising to be a concert pianist, say, and at the peak of his powers was left to moulder playing at second-rate music-halls

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and never saw his name at the top of the poster outside the old Festival Hall. Yet I couldn't take that as a really satisfactory reason. After all, there are far more important things in life than being a space admiral. God forgive me—I felt a little contempt that such a reason for life should so move a man.

But then—I'd never even made it into the Space Navy in the first place. And a man's mind is cunning at laying down a thick protective coating of self-induced flattery and rapprochements with life.

Dave Fairlee was in command of a stone frigate on a scrap of planetary debris circling Appleyard's Star, ten light years from Earth. He used to stand in the control tower, watching the smart cruisers and darting destroyers leaving for assignments in space, and his knuckles would crack together in the small of his back. He maintained a top-line base there, and any captain making planetfall for repairs or maintenance felt a comforting sense of security whenever he was ordered to drop down on Admiral Fairlee's base. Anything Fairlee did smacked of the crisp Navy tradition which was the only way of life he knew.

I was collecting material to write a history of the fleet action off Calvin VI, where Earth had won a resounding victory over Takkat, only to have their battered fleet elements chased halfway back to Solterra by fresh units out of Shurilala. Two battleships lay rusting outside on Fairlee's base, and I wanted permission to go over them, trying to reconstruct what had happened when they had been in action. Admiral Fairlee was courtesy himself.

"A pleasure, Mr. Crespigny," He turned away from the screens to shake hands and wave me to a seat. "Shouldn't there be a 'de' in there somewhere?"

I smiled. "I'm often asked that. I guess, a few hundred years ago, there must have been. But we're all Earthmen now."

"All Earthmen," he said. "Well, I'll come out with you to look over those battlewagons."

"Weren't you in that battle, admiral?"

"Oh, sure. Commanded TSS *North Star*. Battleship. Quite a dust up, I assure you."

We went through the locks in a surface crawler—the little planetoid had no atmosphere—and Fairlee gave the driver his instructions. We had to wear spacesuits inside the hulks of the

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battleships, the holes in their flanks were big enough to drive a double-decker bus through. Going round the warped corridors, squeezing up and down shattered companionways, I could almost smell—in that vacuum—the stink and confusion of the battle. There was good copy there. I was getting the feel of what it must have been like. And I didn't like it. Spatial war was a game for fools, or madmen. Perhaps the aliens, and we of Earth, were both.

Fairlee had brought along his doctor. They seemed good friends, and I was introduced to the big, silent man without comment. The doctor's name was Charlton. It seemed to me that his eyes seldom ever left Fairlee—and when they did it was to consult a thermometer or some other of the magical instruments of his profession. But I took to him, much as I had to Fairlee ; they were complementary.

And, also, I was beginning, even then, to sense the devouring ambition in Fairlee, and the stubbornly unyielding realisation in him that he was a back-number, finished, had been passed over in his own profession.

Only when we were leaving did I realise that all reference to identity had been stripped from the two broken battleships. I suppose I must have guessed.

" Names ?" Fairlee said, climbing into the surface-crawler. He cocked his head back. " That one was the *Scheer*. The other was *North Star*."

I didn't say anything.

I was realising, and savouring the gall in it, of what it must be like to command a shore station with the wreck of the ship you had once commanded lying rusting on your front doorstep.

With the history safely written and a satisfying number of tapes selling to all planets and satellites under the control of Earth, I went back to Solterra, leaving Fairlee sitting dejectedly on his lump of rock. His name cropped up once or twice in casual conversations with other Navy people after that ; but I didn't meet him until the last week of the TEST war.

The truce arrangements had been carried on in secret and no-one was aware of the proximity of a cease fire, least of all a travelling Navy historian. Through channels I'd heard of a new force working up out in deep space, a sort of ginger group, that the high brass said would carve large and juicy chunks out of any alien fleet sent against it. The core was a squadron of

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the latest Jorgenson battleships, equipped with the largest and deadliest rapid-fire cannon then in production. There was to be a light screening force and the whole group was to operate as an entity, manouevring and firing under the direct control of the flagship. The flagship herself was merely a mass of detection gear, control apparatus and living spaces. They said she could pick-out a lifeboat halfway across the Galaxy and pin-point the fire of a thousand heavy cannon onto it as easily as plucking a poppy from a field of daffodils. An exaggeration, of course, but a significant one.

I had an 'in' with Terran Galactic Planning, an old friendship with Kutusov—he wasn't chief, as he later became then—meant that his laconic call sent me hurrying to join theFiftieth Squadron at a gallop.

The details of the new weapons system, fascinating though they were, faded to second place in my imagination when I joined and discovered from Captain Affleck that the new C.O. was to be Rear Admiral Fairlee.

"You've just beaten him aboard by an hour, Crespigny." Affleck glanced around his control room on *Searcher*, mentally checking and double-checking everything that a new and unknown—and probably crotchety—admiral would nose into on his new flagship. Affleck was a typical spaceman, wiry and with that alertness and set to his head and shoulders that seemed perennially ready for the immediate failure of antigrav. Like the old time sailors always used to walk with the palms of their hands outwards, ready to grasp the nearest rail or rope when the ship rolled.

"Have you met Admiral Fairlee?" I asked.

"No. Know very little of him. Last command was a stone frigate, I understand."

"You'll like him. He's a Navy man."

"That's something to be thankful for. Too many darn amateurs cluttering up the Navy now there's a war on."

"They have their uses, captain."

"I can't deny that. But Fifty Squadron has a special job to do. Admiral Fairlee has to be a top-liner. We space as soon as he joins. I can't tell you anything now, you understand, but we've a very big and probably decisive role to play." A warning buzzer sounded. Affleck straightened and I could hear the clatter of feet as the marines and sideboys and bosun's mates ran to their stations by the main airlock. Affleck twinkled at me. "That's my scout. The admiral's barge is orbiting in now."

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We were lying off the fleet base on Deimos, four battleships, the flagship and a screen. Affleck hadn't meant to be caught napping, and I smiled at his typical super-efficient ruse to impress his new commander.

"I'd better make myself scarce," I said. "Mere civilians tend to get trampled underfoot in the rush when high brass chuck their weight about." Then, thinking what I'd told Affleck about Fairlee, I added: "Not that Fairlee isn't human. He is. Possibly too human for a soulless Navy spaceman." Then, at Affleck's odd look, I thought that perhaps the remark had been tactless, and turned to go below.

As it's a pretty useless sort of demonstration to fire a saluting gun into space, compliments are paid by firing the requisite number of coloured rockets. As Rear-Admiral Fairlee's tradition-inspired reception blossomed to its conclusion and the bosun's pipes twittered to silence, I walked slowly back to the control room.

I wondered if Fairlee had changed. Now that he was at last to fly his own flag, at last to take his own command into space as an independent fighting squadron, would he relax, become soft, go slack? Or would he be jumpy, nervous, too-critical? That devouring ambition in the man, now that at last it had received the final necessary stimulus, might slumber and allow him peace.

Somehow, I doubted that.

My cabin was near the lower outer skin and I had to sail a few antigrav shafts before reaching control. By the time I arrived and went in I was uneasily aware of a change in the flagship's atmosphere. The cheerful noise and bustle of a happy ship just prior to blasting off on a mission had vanished. I even saw one or two crewmen lounging about with their hands in their pockets. It was very strange—and I didn't like it.

The first person I saw inside the control room was Dave Fairlee. Everyone was looking at him. Very neat, very dapper, he looked, with his creased brown face showing ageless against the white of his tunic. A yellow signal form was crumpled in his left hand, and lay pressed hard against his trouser leg. His uniform cap was pushed back on his head, giving him an incredibly rakish, young, almost inexperienced look. He was smiling—the sort of smile a man adopts who is chewing glass.

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He must have just finished speaking, there was that quality of silence in the air that rings still with the vibrations of a voice just ceased. Then a screen rating took off his little round hat and chucked it in the air.

And at once the control room exploded into a bedlam of noise and shouting and back-slapping and heady confusion.

By the time Captain Affleck had restored discipline, I understood. Armistice.

So the long, stupid, bloody war between Shurilala and Takkat and Earth was over.

And then I understood, also, what it meant to Dave Fairlee.

He never did get to fly his own flag. His appointment had been cancelled from the moment he set foot aboard TSS *Searcher*. She, with the new tonnages building, was scrapped. Scrapped like Dave Fairlee's career.

For, as Captain Affleck said—telling me something I had at once recognised : " He'll never make Admiral now. If you don't get promoted from Rear to Vice Admiral in space and fly your Vice-Admiral's flag—then you're not eligible for an Admiral's pension—which shouldn't worry Fairlee much—but also you're not eligible for promotion to full Admiral."

In the general rejoicing following the declaration of cessation of hostilities it seemed to me selfish for one man to worry about his own career, a career that could now hinge only on the continuance of the war. Hell—he was a Rear-Admiral, wasn't he ? What did he want to be, God ?

Even then, talking quietly to Affleck waiting for the cutter to take me down to Deimos where I was to catch the liner back to Earth, I sensed that that wasn't the only reason for Fairlee's feelings. I was taken up with my own concerns, getting back to Earth, getting the new book written, planning the next assignment, and so I suppose it was natural for me to push aside the speculations concerning a spaceman who'd never flown his own flag and who now, in the machine-like promotion ladder, must be pushed aside. He had a few more years duty in him, then a quiet retirement and a fresh life raising chickens or running a farm on one of the newly opened-up planets. Fairlee wasn't married. I'd never heard him express an interest on any subjects outside those connected with space and the Navy. But I guessed he'd make out all right. They say spacemen are adaptable.

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It's strange how in meeting an exceptional man at odd intervals over the years gives you a perspective on your own life, Fairlee never quite faded from my memory ; at each encounter the intervening years would roll away and it would seem that our lives had run in harness all the time. And yet I never penetrated beneath the shell. At all times he was a navy spaceman ; just that, nothing more or less. What he read, what plays he saw, what his political and religious views were I could only guess. I guessed that if they did not fit into service life. he cut them out. I knew that he was unhappy if he wasn't in space. I knew that he was courageous, clever, resourceful—but against what he was as a man they were all purely negatived virtues.

The years went by and the uneasy truce smouldered between the three space empires of Earth, Takkat and Shurilala, and I lost touch completely with Dave Fairlee. He must have been running up hard against retirement age when I read a news release that he'd been appointed governor to one of the little planets thrown in by Shurilala as part of their war compensations.

I read the name of the planet—Theodor—and forgot it almost at once. From Earth's point of view it was a dead loss and only a misplaced sense of prestige made us hang on to it and its like. It could have no military value in the strife that was assuredly coming.

But seeing the news item prodded me into doing something I'd meant to see about for a long time and kept putting off in favour of more urgent commissions. I went along to Navy House where Records had their quarters, and spun a yarn about writing a biography of Admiral Fairlee.

No-one had heard of him until I waved the press cutting and they'd set their cybernetic bloodhound sorting through a thousand tons of fusty records. The people in Navy House were happy to co-operate ; I found a very different sort of reception there from that I'd grown accustomed to meeting at the Admiralty. They gave me a box sized room, a projector and left me with the files.

And there was absolutely nothing.

Oh, sure, date of birth, parents—both long since dead—vital statistics, records of courses passed and dates of promotions and citations. But nothing about the man. If I was going to write a biography—which I'd certainly had no intention of

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doing when I'd entered Navy House—I would have to invoke three quarters of it from my own imagination.

They couldn't—or wouldn't—let me see the personnel reports, and this I understood, although it chafed. I guessed that whatever it was about Fairlee that had been the cause of his being passed over would be found there.

Then the bug hit me.

Why had he been passed over? Why had a capable, devoted, conscientious and courageous officer been allowed to wither away, to rust into oblivion as a Rear-Admiral without future prospects? Was there a reason? I remembered the special force, Squadron Fifty, and saw that if the war had continued for another three months, Fairlee would have made Vice-Admiral and in all probability have gone on to become full Admiral. After that; he might have gone anywhere.

Had that just been bad luck? If so, then Fairlee was on the end of one of the stickiest sticks I'd ever run across.

And so, as I said, the bug hit me. I dug out my aqualung, checked the tanks and bought a brand new air compressor. I put a pair of flippers in a case and rang Admiral Kutusov. He was pleased to hear from me. Sure—pleased to—come on round.

So I went past the guards and commissionaires in Admiralty House, saluted the bust of Nelson, and was shown with due deference into a brown painted anteroom. Kutusov did not keep me waiting.

"Good to see you again, Harry," he said, advancing with outstretched hand. "That was a nice write-up."

I didn't reply. The write-up in question had been only a part of the truth I'd dared tell about Kutusov—the secret work he'd been doing was still secret as far as Intelligence was concerned. But the interplanetary press had jumped on it as good copy about one of the men who'd—almost—won the war. I opened the case and took out the flippers. I dangled them under Kutusov's nose.

That old look crept into his eyes. He rubbed a thumb along his jaw. "We-ell, now Harry . . ."

"You deserve a break, Kuts," I told him with force.

"Sure, I know that. But there's a hell of a lot—"

"The war's over. Been over now long enough for you to have worked out how many ration packs were misappropriated. What say we go flying, huh?"

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Kutusov was no fool. He was a craggy man-mountain, hard as a spaceship's hull and twice as fast. He said : " I hear tell you're writing a biography of Dave Fairlee."

" Could be."

" Nice chap."

" When you tip me the wink, I'll write yours. As it is, you're still top secret. Press write-ups are all."

" Sure, Harry, sure. When I'm dead and buried in space in a standard oxygen cylinder. I doubt if it'll be before then." He fingered the flippers. " All right. The taste of canned air is getting down my throat. I'll change it for air canned in an aqualung cylinder. Usual place ?"

" Thought we'd try that water world they've dug up out in Lyrae. Sounds interesting."

It was.

We spent a happy month aqualunging, sporting with fish out of the Ark and generally behaving like kids. When I got around to mentioning Fairlee, Kutusov gave me a knowing smile, stretched out on the silver sand and said : " I knew you wouldn't spend a month loafing without there being some good reason, Harry. What's your interest ?"

" I don't really know," I said honestly. " I met him a couple of times, struck me as a good spaceman. He's governor on one of the treaty worlds now, I hear."

" That's right. He's pushing retirement. As a Rear-Admiral, he's fine. I like him."

I plunged in. " How come he never made full admiral, Kuts ?"

He eyed me askance. " Isn't that way out of your orbit, Harry ? Could seem to me that's high policy."

" Could be. But I don't think so. I'm a tax-payer and I contribute quite a whack to his salary—and yours, Kuts, come to that. He's just as much a public servant as the copper on his beat or the postman. My job is to find out why men tick, and then to see if there's anything in the story that is a lesson to the rest of us. It's my job. He more or less won the battle off Calvin VI ; his ship, *North Star*, held the advanced echelons from Shirilala off for six hours whilst the Terran fleet sorted itself out after clobbering the Takkat boys. They'd have been wiped out if he hadn't sacrificed his ship. Was that it, Kuts ? A black mark for losing his ship ? The court martial exonerated him completely, gave him a medal—I don't know

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which one now, he's got so many. Was that it—taking unacceptable risks, I suppose you'd call it?"

Kutusov trickled sand through his fingers. We'd known each other for a long time. He asked for a cigar and said through the smoke: "No, Harry. That stone frigate job was given Fairlee because his health had cracked up. I wanted to give him a squadron as soon as he made Commodore; but we just didn't have the ships. And I wasn't the big noise then, don't forget. As it was, he'd have reverted to captain as soon as his commodore's time expired; but we managed to fix him up with that base job."

"And Squadron Fifty?"

"Squadron Fifty." Kutusov sighed. "That was a sweet baby, that one. We'd have shown the aliens a thing or three, I can tell you." He tossed the half smoked cigar away.

"You mean that appointment was genuine? It was just bad luck—bad luck from Fairlee's point of view, I mean—that peace broke out when it did?"

"That's right." Kutusov stood up and began to strap on his aqualung cylinders. "Race you to that coral cave we found this morning. Yep—Dave Fairlee was just unlucky. But you ought to know he wasn't the only one."

"No," I said, following Kutusov into the water and pulling down my face mask. "But I don't know the others as well as I do Dave Fairlee."

Kutusov held his mouthpiece in front of his face. He looked genuinely surprised. "But you've only met him about three times in your whole life!"

In turn, I held my mouthpiece in the air, staring at it. "That's right," I said. It hadn't occurred to me before. I felt slightly foolish—and a little dazed. "But it seems like I've known—" I stopped. Then I spat and put the mouthpiece in and turned on the taps. It wasn't important. I knew that one day I'd run across Fairlee again; until that time I determined to forget him. There were too many other things to do.

Forgetting a personality as strong as Fairlee's, and yet as nebulous when weighed by what I knew of him, was not easy. An assignment took me to Shurilala, the home planet of the oily sleek, quick-talking aliens with whom we had so recently been at war. I found that they were just like men; some were good, some were bad, and most were in between. I'd had little

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dealing with aliens from Takkat ; I found those on Shurilala hated Takkat more than they did Earth—or so they said. It was old psychology, that. But there were some Shurilalians I got on with well ; the book sold, and I came back to Earth not unsatisfied.

The biography of Fairlee, of course, never saw tape.

And I tried to convince myself that there was nothing in it for me—not money—nothing in the feeling of having pinned down another personality, of having put into imperishable form what one man had meant to his contemporaries and to the Terran section of the galaxy that had existed at the same time as he had. Truth to tell—there wasn't much that Fairlee had done, apart from helping to avert a defeat off Calvin VI and of having been a first class spaceman. But I didn't, couldn't, accept that view. Surely, he had meant *something* to someone ?

Being in my line of business, you tend to become hypersensitive to this weighing of a man by what he has done that will outlast him. Millions of men and women get born, live and die and lie forgotten. It is only the very few who are remembered for anything at all. And it is surprising how difficult that remembrance is—a trifle can do it, any small thing that leads to a world-shattering consequence—yet a man may struggle for recognition all his life and the moment he is dead he might as well have not been born. I knew it was an old problem, and I felt I knew most of the slick answers to it. Give pleasure to those about you, be content to serve and be remembered by your close circle of friends—but now we were dealing with the fate of planetary systems and, however true all the homilies were, Dave Fairlee had been in the position of a man whose name could have rung down the centuries—but it wouldn't.

And I thought that hurt him.

As Kutusov had said on our last night of the underwater holiday, when we'd sat quietly drinking the first nuclear fizz of the evening, watching the three moons cavort in their cock-eyed dance across the horizon and feeling the odours of marine fish-catching plants floating in our nostrils : " You see, Harry, *everyone* can't be top man. When the Navy was expanding, regulars like Fairlee went up the promotion ladder fast ; but he just didn't make it through the zone before his health broke down and even though we gave him a space command, the finish of the war stacked the cards against him. It happened all the time. You know the old set-up—in the Army it's first lieutenant, temporary major, acting colonel and locally and for

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operations, brigadier. When the war ends the red-tabbed brigadier suddenly becomes a first looey again."

"So Dave Fairlee's career depended, in the round, on pure luck ?"

"What military man's doesn't ?"

Thinking it over, I couldn't answer that one.

Through my Shurilala contacts I got to hear of the Shurilala Academy for Children of Veterans ; at least, like most people in the known sections of the Galaxy I'd heard a great deal of this pioneering effort in the field of social conscience ; but my alien friends offered me the opportunity to visit the Academy and this I jumped at. I was snowed under by commissions and left in the happy position of having my work cut out for me for the next six months. When a solar system takes the trouble to turn a planet—even a small-sized planet—into a playground and University for the children of parents killed fighting for the solar system in question—that's a human interest story no matter if you wear tentacles and have a blue skin.

Spaceliners kept a six-month schedule to Theodor and I was lucky enough just to scrape aboard the liner leaving two days after my preparations had been completed. It was an out-of-the-way planet, and kept that way. Originally it had belonged to Solterra, but we'd lost it to the advancing Shurilalans and, picking it up again in the council chamber, had designated it as a non-military target. The veterans' Academy was kept on and no doubt the Shurilalans had a quiet little smile when they thought about it.

It was certainly a sweet little world. Before the ship touched down I saw wide plains of orangey-rust coloured grass and tall, fragile trees. Any effect of anger or desolation the ochre colouring might have induced was thoroughly banished by the myriads of brilliant exotic flowers. The main town—English name was Council City—had an oddly rural small-town look. White-washed houses with green roofs added a pleasant touch of coolness. Shade trees were assiduously cultivated. The tempo of life was serene, unhurried—even though gravity was half Earth's.

Walking from the spaceship through to reception, I saw that I could like this world. One side of the spacefield was oddly cluttered ; I made out wrecked spaceships and the gleaming hulls of still intact ships slowly weathering ; vines covered most

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of the details and a few gaunt cranes overhung the berthing areas like mourners at a funeral.

"Oh, that," said the receptionist, checking my papers "Everyone asks about the scrapheap. The governor really ought to clear it out. Leftovers from the time Earth owned the place, with fresh dumpings during the war from Shurilala's irreparable ships. It's just an eyesore now."

I agreed. I took a helicab to my hotel—a pleasant, cool, cultured sort of place—quite unlike some of the frontier hostelries in which I've spent wakeful nights. Kassim, my Shurilala contact, found me at dinner and we got to know each other over nuclear fizzes in the bar. He told me that Council City was just about the only town on Theodor; there were scattered farming communities right round the temperate portions of the globe. He couldn't keep it repressed for long, though, and very soon we were launched into an animated discussion of the Veteran's Academy. From what Kassim told me, it was a wonderful place. I began to look forward with even keener interest to my visit.

"How do your people get on with the Terrans, Kassim?" I tried to soften the bluntness of that. But before I could frame the words, Kassim was coughing, doubling up and retching. Shurilalans are slim, deft, fluid people, quite human in appearance, reminiscent of all that is best in East Indians. Kassim, eyes streaming, straightened up and apologised. I noticed that his eyes were unhealthily yellow, like mustard.

"Sorry, Harry. Damned Lalan Disease. Gets right down in your ribs and ties them in knots." He held up a hand as I must have involuntarily flinched. "Oh, don't worry. You Terrans are immune to it—it's reserved exclusively to we Shurilalans." He wiped his face with a yellow handkerchief and I noticed it seemed no more yellow than the flush that stained his cheeks under the eyes. "Comes and goes. Allergy to something in the air. Quacks are working on it."

"Sorry about that," I mumbled fatuously.

"As to your question—we rub along with your people very well. Something about Theodor—apart from the Damned Lalan Disease—in the air. Makes old events seem very far away."

Kassim, like myself, was one of the people who believed—perhaps hoped would be nearer the mark—that a resumption of the war, at least between our two civilisations, was not inevitable and was in any case futile, criminal and moronic idiocy.

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We talked for a time and then Kassim left, promising to take me up to the Academy, a vast enclave six miles out of town, in the morning.

I went to bed with a mental note that I ought to go up to Government House and pay my respects to the governor. But my last waking thoughts were for that scrapheap of broken ships on the edge of the spacefield. There might be a story in there, somewhere.

The Veterans' Academy was fantastic. The place swarmed with kids. Shurilalan kids, shouting and yelling, fighting and squirming, playing alien games and learning alien lessons—and yet I knew that after the first day of strangeness any child from Earth would have felt right at home there. Kassim saw me back to town, still coughing and choking, and he wasn't as dazed as I at what I'd seen. He dropped me off at Government House and I went up the walk, past the flagstaff and into the long wide portico.

And it was only then, as my name was taken in, that I remembered where I'd run across the name Theodor before.

But, of course, Dave Fairlee would have been retired ages ago. The Governor—I didn't know his name—would possibly be able to give me some more information on this man whose tracks I crossed at random intervals in our lifetimes.

So that when Dave Fairlee walked into the room, smiled, and shoved out his hand, I was a little slow on taking it and saying hello.

There must have been something of this 'pre-ordained' business in his mind, too. We'd met for a microscopic fractional percent of our lives, exchanged a few words, skimmed the surfaces of our attitudes to life and processes of looking at things, and yet we both acted as though this was the most natural thing in the world, as though we'd just returned from a day at the office and that we were lifelong buddies.

"Nice to see you again, Harry," Fairlee said.

"You, too, Dave."

First names, you see. Without any embarrassment, with none of the self-conscious flummery that the first exchanges of Christian names so very often gives rise to in a growing friendship. This—friendship—if you can call it that, had never grown. It was just there, intact, a fact.

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He knew why I was on Theodor. From his angle the Veterans' Childrens' Academy was a bright spot in an otherwise routine assignment. I had expected an embittered man, a spaceman chained to a chunk of interplanetary rock and hating every minute of it, a man with nothing left to live for.

I was wrong—but only half-way wrong. There was a set to Fairlee's mouth, a droop that was new to me. He was still spry and dapper, brisk and exuding that aura of purpose and self-will. But then, geriatrics can do wonders these days and he wasn't all that older than I was.

We talked for a time, starting with the Academy and going on to cover major and minor events that had passed in the time since last we'd met. By the time we were up to date I realised just how much of a purgatory Theodor was to Fairlee. He was taking it, of course, like a man. But the keen edge to his sparkle had been washed away in the erosion of time ; like a fiery stallion harnessed to a dust cart, he was rotting from inactivity. But he never spoke about it then—it wasn't until later that we were able to strip away the polite facade of civilisation and he was able to tell me what he really felt. And that wasn't pretty.

The assignment, which force of astronautical time tables made a six-month hitch, I covered methodically, and as my visits to the Academy and to the outlying farms became regular occurrences, I found that these Shurilalan kids were getting under my skin. I couldn't forget that at least fifty percent of their parents had been killed by Earthmen. Ineffectually, I had the crazy idea that we ought to atone. Even then, with Fairlee's second in command to drive home the lesson, I couldn't forget in just the same way that there were thousands of Terran children parentless from the reciprocal. The second in command, Blakey, was stiff-necked, bright-blue-eyed, bulky, and with a mind cased in plaster.

How Fairlee put up with him I didn't know.

I took time out to visit the scrapheap. There were storesi there, too. I filed some with the Agency ; but the prize exhibit I was keeping. This ship, I hadn't figured out yet. She was big—as large as a battleship, yet she didn't have the gross battleship bulge I was accustomed to. She was leaner, lighter—and with the craziest set of engines I'd ever struck. And yet she was in good condition—I'd have taken a bet that

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with a week's maintenance she could have blasted off from Theodor and made the trip to Earth.

Her name was *Hereward.*

The day the trouble started Kassim failed to turn up in the morning with his car. I assumed he'd been called to a prior engagement he'd forgotten to mention—typical of Shurilala, that—and so I decided to pay Fairlee a call. He wore a worried frown and showed more signs of humanity than he had since I'd made planetfall.

The previous evening we'd been discussing the meaning of a man's life to others beside himself. Naturally, the subject had been raised—tactfully—by me. And he'd taken the hook. By this time we'd progressed beyond the cocktail party type of superficialities. "Well, look at me," I said. "I'm not what you'd call a success."

"That's for you to decide. At least your books won't die with you."

"Don't you be so sure."

Fairlee picked a copy I'd given him up and hefted it. "This is solid. What have I got to show for my life? When they bury me in my standard oxygen cylinder in space—I'll vanish completely—"

"You'll be known as the man who kept the Shurilala off Calvin VI and—"

"Who by? The Shurilala? And don't you think Earth will want to forget the war, too?"

"Do you hate them? I mean, for smashing *North Star*?"

"Why should I? It's in me the fault lies. I've done nothing with my life. Not a single damn thing. I've been a good Navy man and a good spaceman and where's it got me? A half-sized planet, nurse-maiding a bunch of alien kids"

"Would you do it all over if you had the chance?"

He laughed, sourly. "I honestly don't know. If I thought I'd fly my flag, command my own squadron—" And then he broke off and his knuckles cracked together in the stillness like dry twigs. "You know, Harry. That doesn't seem important any more. The Navy, I mean. Pomp and tradition and ceremony, tinsel and ribbon packaging to a murder machine. I've done nothing that *means* anything!"

So now this morning, seeing him with this new worry on his face, made me wonder if, at last, he was cracking up.

"We're in a hell of a mess, Harry," he greeted me.

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Blakey, his second, grunted something. At Fairlee's impatient gesture, Blakey amplified. " I don't see why we should worry. This damned Lalan Disease can't affect we Terrans. Why should we worry if the Shurilala all die ?" He smacked a fist onto the desk. " Good riddance, if you ask me."

" What's this, Dave ?" I said sharply.

" This damn Lalan Disease has broken out now in full strength. The aliens must be taken off-planet—or they'll die. There's no two ways about it."

" *All* of them ?"

" Yes. I've radioed for a ship. She might arrive in time to shift the adults before they go down ; but I'm afraid the kids will all be dead within a week."

" A week !" I was appalled. All those kids up at the Academy—all of them, lying cold and dead in a week !

" There's nothing we can do," Blakey said. " Nothing."

Kassim was announced and walked in shaking and sneezing and coughing and looking awful. But he had an idea.

Fairlee's aide-de-camp, young Jeff Creswell, told us. " Kassim has thought of that old battlecruiser, TSS *Hereward*. I've checked her, sir. She could be flown—"

Fairlee looked up sharply. I happened to be looking at him, and to this day I cannot identify to my own satisfaction his expression. There was a tension in the room, a tight mounting sense of drama that the warm sunshine slanting in across the polished wood and dark paintings seemed to magnify.

Fairlee said slowly, relishing each word : " TSS *Hereward*. I remember. It's a long time ago. A very long time ago." Just then, no one understood him.

And I, God forgive my indecent tongue, said : " If she can be readied—and I think she can—we have a duty to these alien kids to take them off-planet as fast as we can."

Blakey's big bulk shot up from his chair, blotting out a good amount of sunshine. He said, thickly : " *Hereward* ! Why do you think she's been tossed there and left ? Crespigny, what do you know about it ? She's a killer—no one can fly her !"

" I could," said Dave Fairlee.

And even then, you see, none of us knew about the collie dog and TSS *Hesperus* and Dave Fairlee—Midshipman Fairlee—and the real reason behind the scrapping of the DAND engined battlecruisers.

" She's a killer," Blakey repeated stubbornly. " You can only take so much radiation—and then you shrivel."

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Young Jeff Creswell jumped in, and his eyes were bright with more than the sun. "I'll fly her! There must be an instruction manual somewhere—I'll get those kids out."

Kassim nodded his head. "If you do that," he said. "If the instruction manual can be found—there will be no lack of volunteers." It wasn't what he was going to say.

As we might have guessed, no instruction manual existed on Theodor. But Cresswell went on looking.

Admiral David Fairlee took command. A party went across to the scrapheap and the old cranes winched the ship out and gangs polished and wired her and set her to rights. They built well on Earth, and *Hereward* was soon as good as the day she'd left the yards. Well, almost.

When the kids trailed in from the Academy they were a miserable, frightened, unutterably pathetic bunch. Even though Blakey frowned and drew his brows down and fumed about, he saw them provisioned and sent aboard. Creswell was growing frantic. One or two deaths had already thinned the ranks, and panic was ready to blow up any minute.

The whole planet of Theodor smouldered with fear.

The signal came into Government House when I was there alone with Fairlee. He handed it to me. What it said summed up the collie dog and contained strict instructions that Admiral Fairlee was not to fly aboard *Hereward*.

I just looked at him.

He took the signal back and tore it up. I still have the pieces, pasted together, safely in my records book.

"Young Jeff is sitting on the end of the wire," he said. "He's waiting for Admiralty to turn up a DAND instruction manual and transmit it to him. The kids will all be dead long before he understands how to fly a DAND ship. It took me a whole year."

"They won't let you fly her out, Dave," I said.

"They can't stop me. If I don't fly her out, with those kids packed aboard, jammed in like sardines, then they'll have all this planet to die on. There's just no free choice in the matter, is there?"

"No," I said.

"If you do it, and you die—"

"The two are certainties."

I swallowed. "If you do—then you'll be remembered. Your name will mean something then."

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"As if I'm worried about that now. If I could do this without dying, believe me, Harry, I would. Wanting a name so bad you'd die for it is rare—and I'm not the martyr type."

"I believe that. Have you a chance?"

He handed me a briefcase. "Look after this for me, will you? I don't suppose I'll be calling for it back."

"If you say so," I said.

"They're about ready. Think I'll be getting along."

I held out my hand. "I wish I could come to. But a civilian would only be in the way. You need all the space you have for alien children. Crazy, isn't it?"

He shook my hand. "No more crazy than my life has been. You serve one taskmaster too long, Harry, and you get hardening of the brain and heart. If the master turns out to be not what you expected."

I didn't answer that one. Dave Fairlee had served the Terran Space Navy. Solterra needed men like him; but in that moment I was profoundly glad and thankful that the Medical board had turned me down. He gripped my hand, turned on his heel, and went out.

I could have stopped him. Blakey and Cresswell between them would, with my information, have been able to have prevented him from throwing his life away saving the skins of alien children whose fathers he had tried to kill.

I could have stopped him.

But I knew then, as I know now, that that was something quite beyond my powers.

If any man deserved to dictate the time of his dying, and what that dying would mean, that man was Dave Fairlee.

TSS *Hereward*, with her damned DAND engines tossing out their radiated filth, took off. I stood at the window and watched until the speck of light vanished in the alien sky.

Well, all our portion of the Galaxy knows that Dave Fairlee made it. He landed those kids safely on the next habitable planet—and then he quietly took the ship spacewards again, dying, and did something to the engines, and she blossomed, like a nova, and died.

Fairlee was a man whose life had been utterly wasted. He had contributed nothing to the advancement of mankind. Any other man in his position could have fought the same battles and any other man would have felt just the same way—except

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that perhaps they would not have been consumed by this sense of personal insufficiency, of private failure.

But in his last defiant gesture, in dying, he had begun the cementing of bonds of friendship between Shurilala and Earth that might, with careful nurturing, withstand the strain of future argument and prevent the spread of war.

Even if everyone on Earth forgets him, the name of Dave Fairlee will never be forgotten on Shurilala.

Which is as good an epitaph for any man.

And Dave Fairlee deserved it. Who was I to deny it to him?

I keep his briefcase among my personal papers. It will be destroyed when I die.

But I like to open it occasionally and to leaf through the tattered dog-eared book with the inscription "D. Fairlee, Midshipman" on the flyleaf. The instruction manual for DAND engines is the only thing the briefcase contains.

Kenneth Bulmer

THE LITERARY LINE-UP

Brian W. Aldiss's two part serial "Equator" opens next month's issue and has an unusual twist to the oft-repeated theme of Earthmen meeting aliens for the first time. Unusual inasmuch as the human race grants the voyagers from another star system territory on Earth in which to live! No war is fought between the two races, but there are more than sufficient complications to satisfy every type of reader.

This issue also sees the last John Wyndham story in the "Troon" series—"Space Is A Province Of Brazil," which has some delightful double-dealing in its final climaxes.

New writer Clifford C. Reed (who has already made his debut in *Science Fantasy*) presents "Morgan's Galatea," a humanised robot story, and there will be other short stories by authors including Harry Harrison and Harlan Ellison.

This issue will also contain an outstanding article by Kenneth Johns in his "Outward Bound" series dealing with this year's attempts to hit the Moon by rockets.

Story ratings for No. 70 were:

1.	Wasp (Part II) - - - -	Eric Frank Russell
2.	For All The Night - - - -	John Wyndham
3.	The House Of Lights - - -	Donald Malcolm
4.	Track 12 - - - - - -	J. G. Ballard
5.	The Macauley Circuit - - -	Robert Silverberg

This issue was so universally liked that there was very little difference in the ratings between the first and last stories.

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From Cheltenham in Gloucestershire we welcome another new British writer to our ranks with a taut thriller whose action is centred on the first Space station—an excellent combination of mystery and science fiction. Our congratulations are also tendered to Mr Jackson on selling another story to the highly competitive American market—although we would prefer to keep him on this side of the Atlantic !

DEATH ON THE WHEEL

By Clive Jackson

I was on duty as Officer of the Watch when the trouble started. In fact, I was playing a quiet game of chess with Doc Curtiss, the satellite's medical officer, and, if that sounds like a piece of punishable neglect on my part, let me tell you that the Quartermaster was looking at a pin-up magazine and the third member of the watch—a Chinese rating named Lee On McGregor—was composing a sonnet.

This only goes to show that bridge duty in Watchdog was a monotonous business. The real work was done on the observation deck in the hub of the Big Wheel and it went on right round the clock. Watchdog was the end-product of the original Eisenhower Open Skies plan of the late '50s. The coelostat heads spied out everything that flew, swam or crawled on the surface of the earth ; the image orthicons scanned them, amplified them and presented them sharp and clear to the observer-techs who photographed, analysed, interpreted and stuffed them into the computor which digested, processed and tested them for build-up patterns. The com-

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putor then threw them back to the cypher-techs who mangled them, scrambled them and shot them out in a tight beam of high-speed pulses to Worldsec H.Q., two hundred feet under the Antarctic ice-cap, map reference nowhere.

Meanwhile I stiffled a yawn and moved Q to KB3.

A buzz and a red light on the intercom panel was answered by the Quartermaster, a hardbitten Australian whose face had the colour and texture of very old leather. He flipped a switch and barked " Bridge !"

The voice that came tumbling out of the intercom speaker was pitched on the high brink of hysteria ; " Bailey here, sir. Sir, I just found the Chief—he's dead, sir ! Got an ice pick in his back—he didn't answer me—rapped on his helmet, you know, sir. The sun came round, shone on his back. Sir, there's an ice pick in his back ! Stuck right in up to the—"

" Steady, Bailey—pull yourself together, man !" bellowed the Quartermaster. Over his shoulder he said " It's one of the riggers, sir. He's outside Number Two lock."

I was completely paralysed by the realisation that, as O.W., I was expected to take charge of the situation. The doc whispered " Damn—it's a murder !" Then the Quartermaster came to my rescue. " Mr. Dent ! Shall I inform the Commander, sir ?" He was as steady as a rock.

I nodded. " Thanks, Q. And give me a mike, please." I found that I could move my limbs ; and my stomach, which had knotted itself into a hard little ball when I'd heard the murder of Crew Chief McKinley announced over the intercom, was beginning to relax again.

I spoke into the mike ; " Bailey, just where is the Chief ?"

" S-section H5, sir," the voice came back, " Right on the rim."

" Right, now come here on the double. No, I mean stay where you are. Keep plugged in." I switched off the mike and swore. Countermanding my own orders ! I wished to hell the Commander would get here."

I turned to the young South African. " Doc, you'll have to get the body to the sick bay. Take a suit from one of the riggers' lockers, it'll save time. McGregor !"

" Sir !"

" Go with the M.O. and help him. When you get to the sick bay, stand guard. Nobody goes in, understand ?"

The Quartermaster said, " I've contacted the Commander, sir. He's on his way."

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"Thank heavens for that!" I turned again to the intercom mike. "Bailey, are you all right?"

"I'm O.K., sir." His voice sounded a lot calmer.

"Good. Listen; the M.O. is coming out. Show him where the body is, then come to the bridge."

"Understood, sir."

I tried to recall Bailey's face but my only mental picture was of a white helmet with the U.V. visor down. He was one of Crew Chief McKinley's riggers—who would be in charge of them now?—the men who spent most of their working lives in lightweight crewsuits, crawling over and over the outer shell with leak detectors or gliding from one side of the Big Wheel to the other among the cat's cradle of bar-taut steel cables that kept it together.

Then the watch snapped to attention as Commander Robert J. Fell, U.S.N., stamped into the bridge with his straddling sailor's gait. He always reminded me of Charles Laughton, who played Captain Bligh in a very early movie; I had conceived an instant dislike for him and had even made up a slanderous parody of "I do not like thee, Doctor Fell." The Commander apparently did not dislike anybody but, on the other hand, he did not like anybody either. Under his flabby exterior he was as sharp as a razor.

Just now, however, nobody could have welcomed the sight of his beetling brows and barrel chest more than I did.

He nodded at my salute. "Lieutenant Dent. Report, please."

I lost no time in doing so. As I told him what had happened and my subsequent actions, he was taking command; you could almost see his grasping reins and flexing muscles.

He nodded brief approval of what I had done. "Quartermaster!"

"Sir!"

"Tell Mr. Preston, Master Tech Heine and one rating to report here on the double. Hand over the watch to them, then follow Mr. Dent and myself to the hospital."

"Aye-aye, sir!"

The Commander stamped out of the bridge with me at his heels, almost colliding with a rating who pulled himself up, out of breath, and saluted.

"Technician 1st Class Bailey, sir!"

"Ah! How do you feel, Bailey?" asked the Commander.

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" Fit, sir."

" Right. Go to my quarters and remain there. Speak to no one."

" Aye-aye, sir !" He saluted, turned about and marched away smartly.

When we arrived in the sick bay Doc Curtiss and his Chinese helper, helmets off but still in crewsuits, were regarding uneasily the body of Crew Chief McKinley which lay face downwards on a table, fully suited. The frost was still melting from the metal parts of the suit and my eyes were drawn and held at once by the knurled plastic handle of a cable splicer's ice pick, protruding from the small of the back between the cylinders of the air-conditioner.

" How long have you been here, Mr. Curtiss ?" asked the Commander.

Doc replied, " About two minutes, sir."

" Time enough to have that body desuited. Get with it !"

The young South African's lips compressed slightly at that and he quickly selected a pair of forceps, with which he withdrew the ice pick and dropped it in a sterile dish.

" Had much experience of death in space conditions, Doctor ?" asked the Commander.

" About ten cases, sir. Various causes."

Fell nodded. " Enough to give me a good estimate of when that man died."

" I think so, sir. The air must have left the suit at the time of death ; the fact that rigor has set in is no criterion. The internal temperature will tell the story."

McGregor and I did the dirty work while Doc shucked out of his crewsuit and put on his smock and surgical gloves.

I unlatched the helmet and drew it clear of the Crew Chief's curly black head. We turned him over to get at the suit fasteners. He had a strong, negroid face, distorted now by the rictus of death. His eyeballs had rolled upwards and were shockingly white against his dark skin.

I think it was only then that I realised we no longer had a crew of eighty in Watchdog. Instead, we had seventy-eight men, one corpse—and a murderer !

As we entered his quarters, Commander Fell waved the Quartermaster and myself to seats. " Sit down, gentlemen. You may smoke."

" Cigarettes !" he added, glaring at the revolting old briar which the Australian had produced from a hip pocket.

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The Commander put his elbows on his desk and leaned forward, looking more than ever like Charles Laughton. "This," he said seriously, "is a court of inquiry. I am the president and you are the members. Any questions?"

"One, sir," said the Quartermaster. "Why us?"

"Obviously because you two are about the only persons on board who *couldn't* have committed the murder, besides the rating, McGregor. Hell of a name for a Chinaman! You were all in the bridge for at least three hours before the murder. I take it nobody left the bridge!" he added sharply.

"No, sir."

"Very well. Now, we can't hush this up but maybe we've got an hour or two before it gets around—then I'll make a statement over the P.A. Do both of you agree that we should try to catch this killer before the next relief rocket? That's in eighty-two hours from now."

I said, "Yes. If you signal Worldsec now, they'll tell you to sit tight until they can get a Secpol team up here. They may even send a complete replacement crew if they can scrape one together, in which case we'll all be under lock and key until they sort it out—if they ever do!"

"And what do you think, Q?"

"I agree with Lieutenant Dent, sir. If those Secpol idiots get among the men there are liable to be a few more murders!"

"Yes. Well, my only consideration is the continuous functioning of Watchdog at peak efficiency—a policy which" (he allowed himself the merest suggestion of a smile) "has not endeared me to my crew. However, that means no Secpol and, especially, no crew switch. Accordingly, this investigation will be completed within eighty-two hours and I will go Earthside, with the murderer in custody, in the next relief ship. O.K., let's get with it! Suggestions?"

"Shall we question Bailey first, sir?" I asked. "After all, he might have done it himself."

"That is my intention. Yes, Q?"

"I'll check in the movements log to see who went in and out about that time, sir," said the Australian. "Permission to go, sir?"

"Certainly. And, on your way, ask Mr. Curtiss if he's made up his mind when the Chief died. If he doesn't finish his postmortem pretty soon, putrefaction will have set in, let alone rigor mortis."

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Bailey, the space rigger, was a tall, lean youth who seemed to be no more nervous than he should have been under the circumstances. He had recovered completely from his shock at discovering the body and he'd obviously been rehearsing his statement, for he ran straight through it without pause or prompting. When he had finished, the Commander said, "Can you identify this?" and thrust the ice pick under his nose.

Bailey looked at it carefully and said, "No, sir. Definitely not."

"Definitely? How definitely?"

"No markings, sir. This pick is new, straight from stores. We all mark our initials or some other identification on the handle."

"Fair enough. Do you want to ask him anything, Mr. Dent?"

"If I may. Bailey, did you see the Chief acting in any way unusually, or see anyone with him, at any time before you discovered his body?"

The lad thought for a while and then said, "Of course, sir! That's how he got to section H5. It was some time before I found him, sir. I was checking the cable tensions on B2 and 3 when I saw him walking away round the rim—inside the rim. He had somebody with him, another rigger. But I couldn't see who it was."

"How did you know it was Chief McKinley?" interposed Commander Fell.

"His height, sir. He had a special crewsuit—the issue ones were too small for him."

I said, "All right, what made you go from B3 all the way to H5?"

"I had to check the cable end-fittings, sir. Some of the guys that are anchored in B2 and 3 finish up in H4 and 5."

"But the Chief was on the *outer* periphery. The cables aren't anchored there, are they?"

For the first time, Bailey looked confused. He said, or rather muttered, "I wanted to—to see the view, sir."

I knew what he meant. I'd done it myself. You can look at Earth on a screen—blow up the picture until you can pick out your own back yard, if you like—but it's not the same thing as going out on to the rim of the Big Wheel where the great globe fills half your sky. She's fifteen hundred miles away but you feel you could reach up with one hand and pluck

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England off her surface and put it in your pocket. I looked at the Commander, who was looking at the ceiling, and then at Bailey, who was studying his shoes.

Fortunately the door buzzed then and the Quartermaster came in carrying the movements log.

Fell cleared his throat and said, " All right, Bailey. You can go to your quarters but don't talk about this to anyone. Understand ?"

" Yes, sir !"

" Dismissed !"

The Q.M. waited until the door had closed behind Bailey, then said, " Sir, if I were you I'd give 'em that pep-talk now. The whole station's seething with it."

" So soon !" The Commander swore. " Now we've lost the element of surprise, if we ever had it."

" That's not all, sir," replied the Quartermaster. Already one or two people are making a racial thing out of this—saying McKinley was killed because he was a nigger. Beg pardon, sir—a negro."

" All right. Hand me that mike, will you ?" He was silent for a moment, while his military brain selected the correct phrases and fitted them neatly together. Then he thumbed the microphone button and said, " Attention ! This is the Commanding Officer."

Pause, while every pair of eyes in the satellite turned to look at the nearest P.A. speaker.

" A short time ago Crew Chief McKinley, while carrying out his duties on the outer shell, was killed by a stab in the back. All hands will deeply regret the passing of a popular crewman and a fine technician."

He paused for a suitable period and then went on more briskly. " An investigation was put in hand within seconds of the discovery of this crime and has already uncovered significant evidence relating to the identity of the murderer. I require the co-operation of all ranks in bringing this inquiry to a successful conclusion and I would point out "—his voice became more forceful—" that only one man in watchdog has any reason to fear, impede or avoid the investigators."

He gave them time to assimilate this—his timing throughout the speech had been superb. Then he finished off with a direct appeal.

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"You are, all of you, dedicated men. Dedicated to the maintenance of peace on Earth and the preservation of our several ways of life. You will realise, I know, that the continued functioning of Watchdog is of paramount importance. I ask you, therefore, not to let this cowardly crime or its repercussions interfere with the normal and efficient execution of your duties. That is all."

He put the microphone back in its rack and caught my eye. "I know I sound pompous, Mr. Dent," he informed me; "I do it on purpose." Then he swivelled his chair and addressed the Quartermaster.

"Did you contact Mr. Curtiss, Q?"

"Yes, sir. He's writing a report. He told me the time of death was thirty minutes, plus or minus ten, before he started his examination."

"As recent as that!" He pointed at the movements log. "Anything significant in that?"

"One thing only, sir," replied the Australian, opening the book. "After McKinley checked his maintenance party out of the main lock at 08.30 hours no one entered or left the hull until Bailey reported the murder at 10.22—except the Chief himself."

"He came in again?"

"Yes, sir. Asked permission to enter by No. 2 lock at 08.49, to get some special tools. He left again through the same lock at 08.56."

I said, "Well, that tells us nothing except that he was alive at 08.56, which checks with Doc's estimate."

"Quite," agreed Fell. "But it doesn't rule out the possibility that somebody was outside without asking permission—there's the manual override, remember."

He was referring to the air-lock safeties, which are normally operated from the bridge. A crewman entering or leaving the hull calls the bridge and states his reason; the intercom panel shows where he's calling from. The N.C.O. on watch enters the particulars in the log and releases the air-lock by de-energising the appropriate safety circuit; the crewman passes through the air-lock and reports again to the bridge, whereupon the N.C.O. secures the air-lock again. The manual override is a big red handle by each air-lock door and is strictly for emergencies.

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" It does, sir. The hull-seal warning lights would come on," I pointed out.

" Hmm. Were you watching your panel all the time, Q ?" asked the Commander.

" Well, maybe not consciously. But I'd have seen the light come on if one of the locks had been opened. I've got eyes in the back of my head, sir—that's why they made me a Q.M.!"

" I believe you. And how tamper-proof is the hull-seal warning system, Mr. Dent ?"

" A hundred per cent," I said. " It's a fail-safe system—here's no way of by-passing it."

" Uh-huh. So, on the present evidence, the Crew Chief was killed by one of his riggers."

" Or somebody impersonating a rigger," I suggested.

" Unlikely," said Fell. " He'd have needed a rigger as his accomplice ; it would be too easy, otherwise, to find out if a man in that party didn't do his shift."

He was right, of course. And, since there was no way for a man to get outside the hull without the bridge watch knowing about it, the murder was pinned squarely on that party of ten riggers. I wasn't happy about it, though ; at the back of my mind was a nagging feeling that, somehow, we were missing something important.

As the Quartermaster and I went about the job of tracking down the members of No. 1 maintenance party and herding them into the cinema, where Commander Fell had ordered them to be kept while they were questioned individually, we began to realise just how much effect the murder had already had on the esprit de corps of Watchdog's international crew.

The men were gathered in little groups, usually of one nationality. Conversations were either dangerously heated or else in low, tense mutters. There was no laughter to be heard anywhere.

The negro crewmen were the quietest of all, but they also seemed to be the unhappiest. Their eyes rolled as they glanced often over their shoulders and, if they had to speak to a white man, they were very polite indeed.

We met Doc Curtiss outside the cafeteria and he button-holed me eagerly. " How's it going, Mike ?" he asked. " Any progress yet—or was that just a line of bull the skipper gave us, about the evidence pointing to the killer, I mean ?"

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I raised my hands firmly and said, " Sorry, old man. No statements, positively none. My lips are sealed !"

The South African's eyes flashed angrily. " Hell, man ! I don't expect you to tell me who you suspect ! Just wondered if you were making progress, that's all. Look, maybe I can help with the investigation if you . . ."

" Look, Doc," I interrupted, " I'll talk to you when we've got this thing sorted out but not now. For one thing, I haven't the time."

" You're telling me," he said. " Listen, boy, you'd better get organised fast—have you seen the way the niggers are acting ? Poor devils, they've seen it all before. I tell you, man, one of these days every damn nigger in the world is going to turn round and slit all the white throats within reach ! I tell you, I won't blame them, either . . ."

" I tell *you* something, Curtiss," I said, grasping his upper arm as hard as I could, " Much more talk like that out of you and I'll have you under lock and key so fast your feet won't touch the deck !"

I looked around quickly ; fortunately there wasn't a rating in sight and the Q.M. was tactfully absorbed in a copy of daily routine orders at the other end of the passage.

The doc pulled himself together with a visible effort. He looked tired. " Sorry, Dent," he said. " I . . . This business has reminded me of . . . I saw the Durban massacre in '68. I can usually manage to forget what I saw but this time it'll take a couple of tranquillisers, I fear." He smiled without humour. " How to be happy though hopped," he said and walked quickly away towards the sick bay.

The Quartermaster drifted back to my side, watching him go. " M.O. feeling the strain a bit, sir ?" he asked.

" Yes."

" Pity. Officers ought to set an example."

" He'll be all right " I said. " Come on Q—let's get after these ruddy riggers !"

We spent six hours questioning and re-questioning the ten and got precisely nowhere. Perhaps I'm not naturally suspicious but they all seemed to be utterly honest and above-board. Yet, one of them was a murderer.

Our task was made more difficult by the fact that the satellite had no police force and no guardhouse in which to hold the

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suspects. We had them in the cinema, guarded by two N.C.O.s, but this could only be a temporary arrangement.

The court of inquiry was sitting around the table drumming its mental fingers when the bridge came through on the intercom.

" Sir ! You're wanted urgently in the day-room—it's some sort of riot !"

Fell was out of the door before the message was completed, with the Q.M. and myself right on his heels. In fact there was no riot in the day-room when we got there but it wasn't going to take much to start one. Dark faces stared stonily at white faces across twenty clear feet of floor space and the air was thick with fear and prejudice.

The Commander walked deliberately out into the centre of the floor. He stood there for what must have been half a minute with his stubby legs astride and his cold eyes travelling over the sullen faces of his men, while the silence stretched out to breaking-point.

Then he suddenly bellowed " Come here !" and waved both of the opposing factions towards him with a sweeping motion of his arms.

They began, first one man, then two, then several more, to edge towards him. He chopped his arms down, with his forefingers pointing to the floor on either side of him.

" *Here* !" he barked. " D'you think I've got leprosy ?"

The two lines of men surged forward and stopped within an arm's length, avoiding each other's eyes.

" Now hear this !" snapped Fell. " In Watchdog there are no Limeys, Yanks, Krauts, Nips, niggers or wops—there are World Security personnel ! I will not, repeat *not*, have either personal quarrels or racial prejudices interfering with the efficiency of my command."

He stopped, breathing heavily, and glowered about him. The tension was broken now ; the men were looking more guilty than angry.

He dropped his voice and went on. " Now, I know it's tough to live with the knowledge that one of your crewmates has been murdered and the guy in the next hammock may be the killer. But—get this, and get it good !—you don't know *how* tough life can be when Secpol moves in ! Well, it's my intention to clear this up without the—assistance—of Secpol. If you'll let me. It's up to you !"

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The reference to Secpol swung the balance, all right. There was a general murmur of assent, even a nervous smile here and there. Well, nobody pretends there aren't seamy patches here and there in the W.S.O. and Secpol happens to be one of them. They get results but they aren't particular how they get them and one day they will have to be thrown out.

Fell waited for silence again, then said quietly, "I want to know what started this."

There was an immediate surge to one end of the room, a confusion of voices and pointing fingers as the crowd parted to let the Commander see the notice board on the bulkhead. Normally it carried information on entertainments, games and the like, posted by young Albertini, who had been made entertainments officer because of his uncle who had once carried a spear at La Scala.

Now, in a foot-high scrawl across the board, were the letters C.L.A.N.—the initials of the repugnant Caucasian League of Anti-Negroes, a so-called secret society of whites whose beliefs dated back to the evil days of an earlier organisation in North America. They had come into existence during the '60s as racial hatreds had flared and eventually been responsible for the native uprisings in Africa as those oppressed peoples revolted against their atrocities. The Durban massacre of whites in '68 would long be remembered as one of the worst days in the history of Mankind. From it, however, had come a greater understanding between the brotherhood of men although it would take generations before the memory would finally be erased.

I fell into step with the Commander as he marched briskly along the inner corridor. "Board's clean, sir," I reported.

"Good. Well, Mr. Dent—do you think they believed my story?"

"Believed you, sir? But surely you don't think there really *is* a Clansman on board?"

"No, of course not—it's likelier the Quartermaster's a Commie! But that wasn't done by a hoaxer, you know, in spite of what I told them. It was a calculated move, I'll stake my command on it."

We came to his quarters and I found myself facing him again across his desk. His flabby face was animated and he prodded the air with a stubby forefinger to emphasise his point. "Dent," he said; "I know the motive behind the

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killing ! At first I thought it was a personal thing ; a quarrel or, maybe, some sort of vendetta. I was wrong ; it was done for the same reason as the Clan business—to stir up trouble, breed fear and suspicion."

He got up from his desk and began to pace the floor. " Listen, Lieutenant, we've got to move fast and we've got to be ready for more incidents. The killer is going to try to initiate a full-scale race riot in this satellite and, believe me, it wouldn't take much to push the men over the edge right now !"

" And, as soon as Watchdog ceases to function, Worldsec is blinded," I said soberly.

" Exactly. Dent, do you know anyone on board who might possibly have Afro-Asian sympathies ?"

I thought of my recent encounter with Doc Curtiss but I knew the South African too well to accuse him of associating with the wild-eyed fanatics of the Afro-Asian Federation of Free Peoples. I knew, too, that he couldn't have killed the crew-chief ; a well-advanced game still set up on my pocket chess board proved that.

" I can't think of anybody, sir," I replied. " Anyway, the screening's so fierce I wouldn't have thought it possible for anyone whose record wasn't a blinding shade of white to get into the project at all."

" So you think my analysis is wrong ?"

" I do. The vendetta theory sounds more likely to me ; for one thing, McKinley came from Haiti and the place is full of voodoo, even in this day and age."

" That would imply that he was killed by another negro."

" Not necessarily, sir. There are plenty of whites mixed up in that sort of thing. And it's just possible that we've a schizo in the crew, a man who'd play the assassin in a voodoo killing."

" Never ! He'd never get past the volunteering stage. No, I think . . . "

The door buzzed and in came the Quartermaster, looking pleased. " Sir," he said ; " I just did an inventory check of crewsuits. There's one missing."

Fell's eyes gleamed. " Ha ! This might be just the lead we want. Good work, Q. Details ?"

" There are fifty crewsuits, lightweight, on the inventory, sir, as opposed to crewsuits, medium ; crewsuits, emergency ; spacesuits, ratings, and spacesuits, officers. Now, there are

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three maintenance shifts of ten men—that's thirty crewsuits ; one for the crew-chief—thirty-one ; six in for repair and inspection—that's thirty-seven ; four u/s, awaiting replacement, and nine in the stores—fifty in all. Well, sir, there's eight in the stores, that's all."

" So. And what does the n.c.o. i/c say ?"

" Nothing, sir. Somebody must have nipped in and swiped a suit."

" Nipped in and . . . ! I'll have his badges for this !" His wrath subsided and he became thoughtful. " However, this might let the riggers out. Supposing, when the Chief came in to get those tools, the murderer persuaded him to pass the two of them through the lock and not tell the bridge ? Hell, no—he couldn't have got in again !"

" Who checked the maintenance party in through the main lock when they came off shift ?" I asked.

" Master Tech. Heine, in the bridge, sir," answered the Quartermaster.

" Yes, but he didn't *see* them pass in—the main lock will take six men at a time. There's no guarantee that eleven men didn't come in instead of ten."

" Lieutenant, you're right !" said Fell. " I doubt that any of the riggers would have noticed the difference. Look, I'll question all the riggers on that point. You two go out and try to find that crewsuit. It's hidden and the hiding place could tell us the story."

We both got up and the Commander said, " Use your eyes and ears while you're circulating. If you run into any incidents put a stop to them, if you hit anything you can't handle call me at once. We're lucky there are no firearms on board, anyway ! Any questions ? O.K., get with it !"

The Commander's injunction to keep our ears open was of little use. The Q.M. and I had split up for the search and, wherever I went, conversation died and men turned aside into convenient doorways.

I had not been out long, however, when I ran into a fist fight between a French stereo-op and an American cook. I got them apart without too much difficulty and tried to hear both sides of the argument.

It seemed that the Frenchman's father had been killed by the Indo-Chinese at a place called Dien-Bien-Phu, which is somewhere near Saigon I believe. At any rate, the Americans

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could have intervened and stopped the battle with the overwhelming force they had in the area, but did not and the French had to surrender. The American had never even heard of that particular battle but was of the opinion that the Frogs were lousy soldiers and had probably deserved to lose it. I detailed them both for fatigue duties at opposite sides of the Wheel, to give them time to cool off.

I looked in at the sick bay to see how Doc Curtiss was but he was out. His orderly was treating somebody for a split lip and informed me that facial contusions and loose front teeth were getting as common as crewcuts. I cautioned him to keep the surgical spirit under lock and key.

I went on with my search, trying to ignore the mounting tension that was dragging every crewman away from his comrades until—how soon?—they would be hurled together in mob violence. Chemically pure and clinically sterile, the

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oxy-helium atmosphere stank of fear and teemed with the bacteria of racial prejudice. The thought occurred to me that when—yes, *when*; not if !—we caught the murderer, our biggest job would just be starting, that of protecting him from the rest of the crew.

I walked round the gentle curve—there were no corners in these corridors—towards No. 2 airlock. As it came into view I had a momentary glimpse of the door closing and then the red light came on above it. Somebody had used the manual override to leave the hull !

Sprinting the last few yards, I peered through the small port set in the door. The man in the airlock was wearing a light-weight crewsuit with the U.V. visor down and, just as he turned away towards the outer door, I saw that the front of the suit was spattered with small dark stains.

It was the murderer's suit, all right ; the act of stabbing must have released a gush of air, carrying with it blood from the wound. I strove to see some point of recognition which might tell me the identity of the figure in the damning suit but suddenly the port frosted over. The outer door had opened ; the man had gone out on to the outer shell.

I heard a faint sound behind me and spun round ; across the passage a locker door was swinging open to reveal the kneeling body of the Quartermaster, which now toppled slowly out on to the floor.

I raised his head and turned his face to the light ; it was bloody but, to my vast relief, he was alive. I saw his eyelids flicker and then they snapped open and, with astonishing rapidity, he was fully conscious.

" Mr. Dent, sir," he muttered. " Bastard hit me with a shifting spanner." He reached up and felt his forehead gingerly. " My colonial oath !" he said.

" Who was it, Q ?"

" The M.O., sir. I was still looking for that suit. Pokin' in lockers and that. Found the suit rolled up in there. M.O. comes along, says what have you got there Q, hits me with a bloody great spanner. Bastard !"

" So it *was* Curtiss ! Now he's gone outside " I said—and then I knew why and knew, too, that Fell had been right.

" The coelostats !" I shouted. " Tell the skipper !" And I pounded away down the passage, leaving the Q.M. to pick himself up.

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Skidding to a halt by the main airlock, I snatched a crew-suit from one of the maintenance crew lockers and punched the intercom button by the airlock door with one elbow as I scrambled into the suit. A small, metallic voice said "Bridge."

" Dent here—release the main airlock and get some men out there after me, double quick !" I snapped the helmet on without waiting for a reply but the inner door opened immediately.

I tumbled inside, trying to do a two-minute suit check in the ten seconds it took for the lock to exhaust. When I stepped out into the cold vault of space I knew the suit was airtight but that was about all.

I lost more precious seconds when the Wheel swung me round into the sunlight and I found my visor was up. I snapped it down but could only stand there listening to my air-demand valve ticking until the great red blotches that swam before my eyes cleared sufficiently for me to look around.

Then I saw that my fears were justified. The mirror-faceted eyes of the coelostats were set at either end of the 300-foot " axle " of the Big Wheel. Curtiss had made his way from No. 2 airlock along one of the four tunnels that formed the spokes of the Wheel across the observation deck in the hub and was now walking, with the hesitant gait imparted by his magnetic boots, up the vertical (to me) axle, towards one of the coelostat heads.

Ten seconds, perhaps less, would elapse before he would raise the adjustable wrench he was carrying and bring its considerable mass crashing down on the slowly turning mirrors. There was only one thing I could do.

It was a rigger's trick and they do it with contemptuous ease. They crook one arm round a rigging cable and push off with their feet against the shell ; just before they reach the other end of the cable they flip themselves over and arrive feet first. I had a nasty feeling that it needed practice.

Of course, I pushed much too hard with my feet, shot along the cable like a runaway monorail car and reached the other end before I'd even thought about the flip-landing technique.

The cable was anchored to the axle, just short of the coelostat head, with a big tensioning screw which my arm struck with a vicious jolt. My grip on the cable was broken but my progress hardly checked ; I careered on, skidding across the smooth surface of the axle shell, scrabbling wildly for a hand-

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hold and, finally, with plenty of momentum left to kill, cannoned head first into Curtiss's legs.

His magnetic soles lost their grip on the shell and he went spinning away from the axle, out past the rim of the Wheel; whirling with arms outstretched like a little white-suited ballet dancer he dwindled away among the cold, hard stars in a pirouette that would never end.

I watched him go, clinging like a limpet to a ring bolt, and listening in cold horror to the air whistling out of the punctured arm of my crewsuit.

I'd been living in an oxygen-rich, low-pressure environment for months so I had several minutes in which to reach the nearest airlock, unless I got the bends. I knew this perfectly well but could not—*could not*—let go of that ring bolt! If I did, my mind was made up that I would fall off the satellite. The lightweight suits carry no radio and I doubt if I could have plugged in my intercom even if there had been a socket close by. I lay there in the dreadful silence that followed the last sigh of my precious air, willing my fingers to release their deadly grip. It was no good. I couldn't let go, literally, to save my life.

"Bailey brought you in, sir," said the Quartermaster. The skull-cap of white bandage that he was wearing gave him the appearance of a very brutal surgeon. "He must have been into the airlock just as soon as you were out of it."

"He saw your human cannonball act, too," said Commander Fell, who was sitting on the end of my bunk smoking a black cigar. "He told me about it. It's the quickest piece of thinking I've ever heard of, but you were crazy to do it, Mike."

"Do you think I *meant* it to happen like that?" I grinned. "I'm not that crazy!"

"Well, you nearly killed yourself, boy, and you could have saved yourself the trouble," said the Commander, growing serious. "Why didn't you tell me about Curtiss?"

"I just didn't want to get him in your bad books, Commander," I said. "I couldn't see how he could possibly have killed the Chief." I gestured towards the pocket chess set on my table. "I still don't see it—he was with me when it happened."

Fell smiled and sucked his cigar. "The Q and I have it all figured," he said. "Here's what happened."

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" Curtiss had a stolen crewsuit stowed by No. 2 airlock. He went first to the observation deck and puttered around for a while playing with the hull periscopes. He'd made quite a habit of doing that recently so nobody paid him any attention.

" What he was doing, of course, was waiting until he could see that all the maintenance crew were busy and suitably disposed on the hull for the working of his plan.

" When everything seemed to be O.K. he went to the airlock, put on his suit and went out—all right, boy, you'll see how in a minute ! Then he killed McKinley—lured him away on to the rim to show him some 'damage,' I guess—came back in and stowed his suit and went to the bridge to establish his alibi with you. Don't forget that we only had his word as to the time of the Chief's death ; actually it was about an hour earlier than he told us."

The Quartermaster had been watching my ill-concealed impatience with some amusement and now took up the story. " My crack over the skull was just bad luck but it precipitated his last-ditch try for the coelostats.

" He thought we'd be looking for that crewsuit and wanted to move it as soon as the coast was clear, because he knew that, if we found it by the No. 2 lock, we'd guess how the murder was done and bang would go his alibi."

" He still hasn't figured it, Q," chuckled the Commander. " Listen, Mike—who used that airlock at the time in question?"

" Why, the Chief himself, sir."

" Anybody see him ?"

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" Not that I know of. You mean Curtiss impersonated the Chief ?"

" Go on, boy."

" No, it won't hold air—he came in first and then went out again, not the other way round."

" Who says so ?"

" The bridge. The intercom panel shows . . ."

" The light dawns !"

" He swopped the cable connectors ! He changed the interior and exterior intercom lines over before he went out and replaced them after he came in."

" Bingo ! The Q here thought he was going out when he was coming in and coming in when he was going out. Confusing, isn't it ?"

" And was he an A.A.F. agent ?" I asked.

" Almost certainly. He wrote the Clan sign on the notice board and we've since pinned a whole lot of the racial trouble on a word here and a word there from Mr. Curtiss."

Commander Fell got up from my bunk and stubbed out his cigar. " You'd better get some sleep now, boy. The relief rocket's due away in seven hours from now and you are going to be in it."

" I'm going Earthside, sir ? But I'm fit now, really . . ."

" You're on a month's furlough, Lieutenant ! And on your way back you have an assignment. You will take charge of a party of female observer techs and do your best to stem their natural emotions—such as fear—on the ride up. Understood?"

" Aye-aye, sir !"

We looked at the Quartermaster, who wore the expression of one who has seen the Promised Land. " You mean—the Wheel's going to be full of sheilas, sir ?" he asked disbelievingly

" Not full, Q. There are six of them—which makes it worse, if possible. Hell, an international crew's bad enough but a *mixed* international crew will be murder !"

Clive Jackson

Postmortem

Sorry your letter section has been squeezed out this issue, but we will make up for it next month.

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